Frank X. Hey

THE JOURNAL

OF THE

Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

THIS number of the Journal marks the ending of the Old Year, and with it should we not ask ourselves—are we making progress? What is progress? Is it a birthright of society? History seems to indicate that progress, like democracy, requires eternal vigilance, and in the last analysis is the result of effort.

The present volume of this Journal is the largest in the history of the Society. As the Committee on Post-Graduate Education has responded to our needs in affording every possible opportunity for self improvement, so the Publication Committee has tried to produce a journal that would reflect the accomplishments of our members as well as the newer concepts of medical thought. It would seem then that we are making progress.

It is a pleasure at this time to acknowledge our obligations to the gentlemen responsible for the burdensome details of publication and to extend to them and to all other members of our Society our best wishes for a Merry Christmas and a Happy and Prosperous New Year.

JAMES D. BRUCE,
Chairman of the Committee on Publication.

Volume XXVIII **DECEMBER, 1929** **No. 12** [Whole No. 328]

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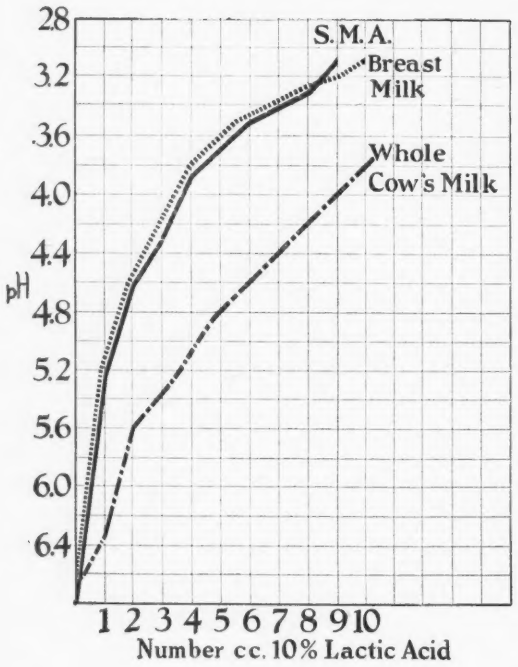
Buffer Value of S. M. A.



The buffer chart at the left shows the wide difference between the buffer curve of Breast Milk and cow's milk and the similarity of the buffer curve of Breast Milk and S.M.A. This explains why it is not necessary to add an acid to S. M. A.

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PRACTICAL DIETETICS IN THE LIGHT OF MODERN SCIENTIFIC RESEARCH*

C. E. STEWART, M. D.**

BATTLE CREEK

Until a comparatively recent date the prescribing of food from both a prophylactic and a therapeutic standpoint has been largely empirical. However, during recent years the excellent work done in our research laboratories along the lines of physiology and physiological chemistry as related to nutrition has given us solid foundations on which to base a real science of dietetics which is capable of meeting the requirements of rational therapeutics.

Fortunately this information has been quite generally spread through the medium of medical and other scientific journals as well as by the better class of magazines, and has no doubt been of great benefit to mankind in general.

Physical fitness of its citizens is the most important asset of any nation and when we consider carefully the causes of physical unfitness, which is altogether too prevalent, we are confronted with the fact that faulty nutrition plays a major role.

If we study the factors which are concerned in the maintenance of health and longevity of man, we will find that nutrition is the most important of all, for it concerns every individual and is essential to his daily existence.

It is estimated that fully fifty per cent of our population are physically imperfect and that all of the time over three million people in the United States are seriously ill and that there are over one and one-quarter million deaths annually, the majority of which are premature and could be prevented.

In the past quarter of a century there has been a very gratifying gain in the younger age groups but unfortunately this has been offset to a considerable degree by an increase in the mortality rate in the later decades of life due to the increase in

* Presented at the 109th Annual Meeting of the Michigan State Medical Society, Jackson, Michigan, September 17, 18, 19, 1929.

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the so-called degenerative diseases which are largely the result of unhygienic habits.

McCollum, who has given a great deal of study to the subject of nutrition both in health and disease, in considering the problem of physical deterioration makes the following comments: "If we examine the writings of those of today who are most active in studying the health problems of children and in arousing the nation to activity on their behalf, one finds various causes assigned for existing conditions. All would agree that we must attribute our physical deterioration to the subjection of the human race to new and unfavorable conditions, but differences of opinion exist as to the relative importance of these. The sedentary life within houses instead of out of doors, the wearing of clothing instead of exposing the skin to the weather with its changing conditions, the eating of soft food instead of raw, coarse food, the debilitating effect of certain climates, the preservation of weaklings through improved hygienic care, the artificial feeding of infants instead of nursing, the burden of responsibilities of civilized life, both mental and moral, and the failure to care for the hygiene of the mouth are among the causes most prominent. Doubtless each of these plays its part in contributing to place civilized man in many parts of the world in his present unenviable position with respect to health. It can now, however, be asserted with assurance that the chief factor responsible for human deterioration in recent times is not included in the above list. The chief factor lies in the unwise choice of food."

If the chief factor responsible for the physical deterioration of the human race lies in the unwise choice of food, the tremendous importance of proper nutrition is at once apparent and instead of holding the mediocre position to which it has been relegated so long, it is entitled to a premier place in modern therapeutics.

The science of nutrition has become so firmly established by recent scientific research that dietotherapy is of primary importance in the prevention and relief of the majority of disorders from which humanity suffers.

For many years the farmer has made a practical application of the scientific knowledge relating to nutrition in the raising of his stock; he knows how many pounds of meat can be produced from the grain he feeds, and he rations his dairy cows with such scientific accuracy that he can obtain a maximum quantity of milk and butter fat with a minimum amount of waste. He applies every advance step in nutrition in the rearing of his animals and is gratified at the splendid results obtained, but he too frequently fails to recognize that application of the same principles now available with reference to human nutrition would, if applied to himself and his children, give him even more gratifying results.

The failure to recognize and apply these principles is the chief reason why more than fifty per cent of our school children are undernourished. The principles underlying the selection of an adequate dietary both in health and disease, are comparatively simple and can be readily understood and applied. When it is recognized that a patient is suffering from a nutritional disorder care should be exercised to determine whether or not it is of a metabolic or deficiency character, or both, and a diet prescribed accordingly. The diet should be of such a nature as to correct all of the patient's dietetic errors, and no diet should be prescribed that is not complete and well balanced for the case in question. The diet should be biologic in every respect, that is, it should satisfy the physiologic requirements of the individual. We must remember that the positive phase of dietotherapy has arrived and that the patient of today will not be satisfied with a lot of don'ts regarding what he should eat and drink. If satisfactory results are to be obtained he must be given positive and explicit instructions as to what he should eat, when he should eat, also the quantity and quality of food to be used.

Usually a normal person chooses the foods best suited to his requirements, and as a result seems satisfied. However, a careful study of the science of nutrition may reveal that a continuance of this diet over a long period of time may be the means of laying the foundation for one or more of the degenerative diseases from which so many people suffer during and after middle life. People generally need instruction in the science of nutrition which should include information relative to fuel values, the fundamental food elements including the essential minerals and accessory foods such as the vitamins; also as to the kind of foods best suited to their needs.

The unit of measure of the fuel value of food is the calorie, that is the amount of heat required to raise one liter of water one degree centigrade. The

fuel-producing foods are the proteins, fats and carbohydrates. One gram of carbohydrate has a fuel value of four calories, one gram of protein a similar amount, and one gram of fat a fuel value of nine calories. There are several factors which must be considered in prescribing the proper number of calories in a given case, chief of which are age and degree of activity.

In a state of complete rest approximately 1,000 to 1,400 calories are required daily; for one who can be out of bed several hours daily, 1,400 to 1,600 calories. In persons doing hard manual labor, 3,400 to 4,000 calories are required. Children under one year of age require 600 to 1,000 calories; from one to two years of age, 1,200 to 1,400 calories; from two to five years of age 1,400 to 1,600 calories; from five to ten years of age, 1,600 to 2,000 calories; over ten years of age, 2,000 to 2,600 calories.

The protein requirement of the average individual under normal conditions, is one and one-half calories per pound of body weight. Protein is being constantly used up during physical activity and must be replaced by an adequate amount of protein-bearing foods. As a rule, too much protein is consumed; on the other hand, there are cases in which too little is used. A deficiency is likely to cause lack of endurance, anemia and circulatory asthenia. In many instances too much protein is eaten; this is particularly true in persons fond of meats, eggs and fish. In such cases the excess of protein is converted into sugar and fats and is excreted by the kidneys; the liver is also unnecessarily burdened by the excess work thus thrown upon it. The blood is also charged with an excessive amount of urea and uric acid. The kidneys may also be injured by the excretion of these end products.

CARBOHYDRATES AND FATS

The fats, sugars and starches are the fuel foods; they furnish the fuel to maintain heat and the energy utilized in muscular, glandular, and other forms of vital activity. Fats have also been found to be an essential constituent of protoplasm and form a part of the living cells of the body. Fats differ from carbohydrates in their utilization as fuels, in that the sugars and starches are rapidly oxidized and are sometimes called quick-burning fuels; fats instead of being quickly burned are stored for future use and are comparatively slow burning. Fats contain proportionately less oxygen than carbohydrates and require a much larger amount when consumed, and as result produce a proportionately larger amount of energy when burned. An ounce of fat furnishes more than twice as many calories as a corresponding amount of carbohydrate.

The average normal individual requires sufficient food to furnish him a fuel value of about 2,600 calories daily, the proteins furnishing about 10 per cent, the fats 30 per cent and the carbohydrates 60 per cent.

To illustrate some of the fundamental principles involved in dietotherapy, we will call your attention to its application in a few of the disorders so commonly met with. The most common disorder with which the physician is called upon to deal is intestinal stasis, and is one which can in the majority of cases be avoided and relieved by a properly selected dietary. In cases where the stasis has existed for a considerable period of time there is likely to be a coexisting colitis which requires additional therapeutic measures for its relief.

The normal diet should contain a sufficient amount of bulky residue-containing foods to insure sufficient peristalsis to produce normal bowel evacuations. Concentrated foods such as many of the especially prepared breakfast foods, white bread, meats, eggs, butter, fats, etc., which leave very little residue are no doubt in a large measure responsible for the development of intestinal stasis.

Unfortunately the temporary relief obtained from the use of medicinal laxatives, mineral waters, etc., are fruitful sources in encouraging the further development of the very condition for which the patient sought relief, and no doubt responsible for many cases of colitis. The principal residue-containing foods are fruits and vegetables. A liberal allowance of these with whole wheat bread will usually be sufficient to produce regular and satisfactory bowel movements; if not, the addition of a few teaspoonfuls of bran or psyllium seed will usually bring about satisfactory results.

In the more stubborn cases other than dietetic measures will need to be adopted; in such, the distal colon is usually spastic which hinders the bowel contents from reaching the rectum where the normal reflex for initiating a bowel movement is located. As a result the cecum becomes dilated and atonic, rendering the ileocecal valve incompetent, thus allowing the liquid contents of the colon to be forced into the

ileum during reverse peristalsis. A spastic distal colon, dilated cecum, incompetent valve, the lower small intestine filled for several feet with liquid colonic contents, are conditions favoring the absorption of the toxic products resulting from the putrefactive process which is always present under such conditions. Many of these cases complain of headache, vertigo, lassitude, and present a coated tongue and foul breath; prompt relief is usually obtained by proper evacuation of the bowels.

The relief of intestinal stasis is a problem for the dietotherapist, and in his management of such cases several important points should be given consideration. In the first place, the putrefactive process which is present should be relieved as promptly as possible for it is both a cause and an effect of the existing stasis.

If we examine the stools of breast-fed infants we will find that they are always acid in reaction, whereas the stools of the artificially fed are alkaline or neutral. It has been demonstrated that the lactose found in mother's milk is the determining factor in producing the acid reaction, and that the high protein content of cow's milk favors the growth of the putrefactive type of bacteria. The addition of lactose to cow's milk transforms the proteolytic flora of the artificially fed infant to one approaching that of the naturally fed.

As a rule an alkaline reaction of the contents of the colon encourages stasis while an acid reaction encourages peristalsis. From these facts it can be readily seen that care should be taken to see that an excess of protein should not be prescribed and that it would be greatly to the patient's advantage to be given liberal allowance of milk sugar with his diet. Starchy foods, particularly potatoes, bread, beans, and fruits, assist in changing the flora from the proteolytic to the aciduric type, while on the other hand animal proteins produce a markedly proteolytic or putrefactive type.

The diet for the relief of intestinal stasis is quite simple. It should be sufficient in amount, and contain an abundance of bulky foods which is provided in a diet containing a large amount of vegetable foods, such as lettuce, spinach, cabbage, cauliflower, carrots, asparagus, beets, tomatoes, onions and legumes.

A liberal amount of fruit should be taken, such as apples, oranges, pears, grapes, grape-fruit, etc. Dried fruits such as figs, raisins and prunes are also valuable, and fat in the form of butter and cream.

As previously mentioned, animal foods such as meats, fish and eggs encourage putrefaction because of the fact that they are high in protein content and also contain large numbers of proteolytic bacteria. While it is true that meat furnishes complete protein, the same is true of milk and nuts. A quart of milk daily will supply a sufficient amount of complete protein so that meat and eggs can be left out of the diet entirely without in any way interfering with the patient's nutrition and at the same time facilitating the changing of the intestinal flora from the proteolytic to the aciduric type.

Another disorder which is quite prevalent and frequently not recognized is acidosis, of which there are two types. All foods when taken into the body are digested, absorbed and burned, and like the burning of fuel in a furnace, an ash is produced.

Under normal conditions the starches and fats and the larger part of the proteins are burned to carbonic acid, which is eliminated by the respiratory process. However, if respiration is interfered with an acidosis may occur from the retention of carbonic acid, a condition sometimes found in pneumonia and cardiac diseases where the pulmonary circulation is interfered with. In addition to the carbonic acid the oxidation of all foods produces an ash which is not eliminated by the lungs but largely by the kidneys, and the urine may be either acid, alkaline or neutral.

If the diet is of such a nature that the ash is dominantly acid and is not properly eliminated by the kidneys, the alkalinity of the blood will be gradually reduced, a condition which sooner or later produces the acid ash type of acidosis. This form of acidosis can be ascertained by determining the reaction of the urine; if highly acid we may conclude that there had either been an excess of acid ash food eaten or too little of the alkaline ash type.

Patients suffering from this type of acidosis often complain of lack of energy and ability to concentrate, anorexia, nausea, vomiting, headaches, insomnia, myalgia, sour stomach, burning urine, irritability, and sometimes a migraine type of headache which is relieved by the balancing of the diet by a sufficient amount of alkaline ash foods.

The following is a list showing two types of foods with their varying degrees of acid ash and alkaline ash qualities:

ACID-BASE BALANCE IN FOODS

Alkali Producing Foods	c.c.N.acid per 100 gms.	Acid Producing Foods	c.c.N.acid per 100 gms.
Molasses	56.	Egg yolks	25.
Raisins	23.6	Oysters, fresh	15.1
Beans, fresh lima	14.	Shredded Wheat	12.2
Almonds	12.3	Oatmeal	12.
Parsnips	11.9	Sardines	11.3
Dates	11.	Eggs, whole	11.
Beets, fresh	10.9	Beef, porterhouse	10.9
Carrots	10.8	Chicken	10.7
Figs	10.	Salmon, canned	10.7
Rutabagas	8.5	Barley, pearl	10.4
Cucumbers	7.9	Pork, lean	10.
Celery	7.8	Veal, loin	9.8
*Muskmelon	7.5	Ham, smoked	9.7
Lettuce	7.4	Beef, ribs, lean	9.6
*Potatoes	7.	Mutton, leg	9.6
Cocoanuts	7.	Rice	9.3
Pineapple, fresh	6.8	Halibut, fresh	9.3
Sweet potatoes	6.7	Trout, salmon	8.8
Plums	6.2	Crackers, soda	8.3
Cabbage	6.	Walnuts	7.8
*Bananas	5.6	Bread, whole wheat	7.3
*Oranges	5.6	Bread, white	7.1
Tomatoes	5.6	Perch	6.3
Lemons	5.5	Corn	5.9
Beans, fresh string	5.4	Cheese, cheddar	5.4
Peaches, fresh	5.	Lentils	5.1
Mushrooms	4.	Bacon	5.
Grape juice	3.9	Egg white	4.8
*Apples	3.7	Peanuts	3.9
Pears	3.6	Corn, green	1.8
Radishes	2.9	Cranberries	*
Milk, whole	2.3	Prunes	*
Onions	1.5		
Peas, fresh	1.3		

* These foods have been found experimentally by Blatherwick to be the most efficient in reducing the acidity of the body.

* The ash of these foods is alkaline in nature, but because of the unoxidizable acid contained by them, they increase the acidity of the body.

NEUTRAL FOODS

Butter	Cornstarch
Cream	Cane Suger
Lard	Tapioca

In general, fruits such as oranges, lemons, grapefruit, apples, peaches, etc., prevent acidosis, while white bread, cereals, eggs, fowl, meats and fish encourage it.

The acid ash type of acidosis as a rule is readily remedied by balancing the acid ash type of foods with the alkaline ash type. The high urinary acidities produced by the consumption of cereals, white bread, crackers, meats, fish, fowl and eggs, can be overcome by the use of oranges, apples, melons, bananas, potatoes and milk.

Sansum has called attention to the influence of diet in cases of arterial hypertension. In studying these cases he found the urine highly acid, and that when the acidity was reduced by the adoption of a proper dietary the blood pressure was favorably modified in 90 per cent of the cases. Only terminal cases with marked sclerosis of the blood vessels failed to respond satisfactorily.

In a series of experiments to determine whether the blood vessel and kidney damage which is responsible for the high blood pressure could be produced in such animals by unbalanced diets, Sansum and his colleagues took for their controls 12 healthy young rabbits and gave them a balanced diet of grain and alfalfa hay; during a period of two years these animals with the exception of one which died from pneumonia, remained in excellent health. Their blood pressure remained normal and their urines were slightly acid. When killed their tissues were carefully examined microscopically but no evidence of the type of blood vessel or kidney disease, which is the cause of high blood pressure, was found.

A second group of healthy young animals was given a diet decidedly of the acid ash type, care being taken to furnish adequate vitamins. These animals did not grow well; some died during the two years of the experiment; every rabbit that lived longer than eight months developed high blood pressure and Bright's disease, with albumin in the urine. The remaining five were killed and their tissues as well as the tissues of those that died earlier in the experiment were examined microscopically. Depending upon the length of life, the blood vessels showed increasing degrees of the same type of kidney disease which is seen in patients dying from this type of the disease.

In a third group of 12 healthy young rabbits the diet consisted essentially of grains and meat. For this experiment liver was used, baked, ground, dried, and mixed with grain, the necessary vitamins being supplied. During the fourteen and one-half months of the experiment 11 rabbits died. Marked increases in blood pressure were noted, beginning at the end of the third month. These animals were very difficult to care for as many of them were sick the greater part of the time. Gross and microscopic findings were more marked than in the grain series.

Another series of experiments was performed to determine whether or not the over consumption of protein would produce blood vessel disease. To a group of twelve healthy young rabbits a high protein excessively alkaline diet was given. The animals developed serious Bright's disease and all died during the twenty months of the experiment, but the microscope did not reveal any evidence of blood vessel disease which is associated with high blood pressure. From this evidence it would seem that there is probably some relationship

between the kind of diet used and arterial hypertension and kidney disease, which are frequently associated with some myocardial disturbance. In view of these facts we should advise our patients to be especially careful to select a well balanced dietary containing plenty of fresh fruits and vegetables and to eat less bread and use more milk in the place of so much meat, fowl, eggs and fish. Those doing manual labor will find the legumes especially valuable because of their high alkaline ash and nutritive values.

THE ACETONE TYPE OF ACIDOSIS

This form of acidosis is not liable to occur if plenty of carbohydrates are eaten. It is due to the overconsumption of fat or the underconsumption of carbohydrates, and is the result of the incomplete combustion of fat. Fat is only completely oxidized in the body in the presence of burning sugar, hence in diabetes mellitus where the patient is unable to oxidize all of his sugar, his fats are not properly burned and as a result develops the acetone type of acidosis which is characterized by sluggishness, headache, nausea, vomiting, coma and death.

Our dietary systems at the present time rather encourage the acetone type of acidosis. We are consuming more and more fat and less carbohydrate, rich milk and cream, plenty of butter and cheese, fat meats, bacon, nuts, egg yolk, olive and vegetable oils, foods cooked in fats, rich gravies, creamed vegetables, etc. If we are to avoid this form of acidosis we must eat more carbohydrates and less fat. When present it should be treated by giving the patient more carbohydrates. If vomiting is present and persistent, sour drinks such as lemonade are helpful, pieces of orange, lemon or grapefruit with sugar will often be retained and combat the acidosis. Fruit juices are excellent in these conditions.

Following operations carbohydrates in the form of fruit juices should be given freely; if not retained, sugar should be introduced by enema or intravenously. Individuals attempting to reduce by cutting down on the fuel value of their food should reduce their calories by eliminating fat rather than carbohydrate. The proper carbohydrate fat ratio for an adult is about 2 to 1; if this ratio is maintained there will be little danger of the acetone type of acidosis developing.

MINERAL REQUIREMENTS

An adequate amount of minerals in our food is necessary in order to furnish a normal diet. The most important of these are iron, phosphorus, calcium, carbonates, sodium, sulphur and iodine. A deficiency in iron-containing foods reduces the hemoglobin content of the blood, resulting in an anemia. The chief iron-containing foods are the green leafy vegetables such as spinach, cabbage, cauliflower, etc. Of the fruits, raisins, grapes and apples are comparatively rich in iron. The phosphates, especially sodium and potassium, are helpful in reducing the acidity of the urine. These are present in fruits and vegetables. Calcium as calcium carbonate and calcium phosphate furnishes about 90 per cent of the mineral content of bones. These can both be obtained from cow's milk; they may also be obtained in abundance from vegetables. Sodium is an important mineral and is usually obtained from sodium chloride or common salt; of this, the body requires about 2 grams daily. Iodine, while required in very small amounts, is a very essential element for the normal functioning of the body; it is usually furnished in sufficient quantities in our drinking water; when deficient it is usually found in sufficient amounts in table salt. Sulphur is found in the hair and nails and is available in sufficient amounts in eggs, onions, cauliflower and cabbage.

According to Sansum, if the hemoglobin is normal and an adequate amount of fruits and vegetables are eaten so as to afford sufficient bulk and alkali requirements and the diet contains 1 quart of milk daily, the mineral requirements of the body will be satisfied except in cases where the drinking water is deficient in iodine.

DEFICIENCY DISEASES

For a great many years it has been recognized that certain diseases were definitely related to diet. Among these scurvy stands out prominently because it was so common among sailors who were restricted to certain foods for a considerable period of time. However, experience taught these men that by the use of vegetables and the juice of citrus fruits, the disease could be prevented as well as relieved.

Beriberi, a disease common in the far East, was also known to be the result of an inadequate diet, and was in some manner related to the use of rice. From studies of beriberi and especially the polyneuritis in pigeons produced by feeding polished rice, Funk concluded that the pathological conditions were due to the lack of some essential food substance which he attempted to isolate. He was successful in making an extract from rice

which when injected into pigeons with polyneuritis had remarkable curative properties. This substance was thought to be an amine, and Funk proposed the name vitamin (vital amine) for his product.

Since this time numerous investigators have made clear and demonstrated that several substances of a vitamin character exist, and the term Vitamin is now used for the group, and letters for special designation.

Five distinct vitamins have been carefully studied and are designated by the letters A, B, C, D, E; vitamines D and E are the most recently discovered and have not been sufficiently studied to fully determine their distribution.

McCarrison, who has carefully studied the deficiency diseases summarizes our present knowledge of vitamins A. B, and C, as follows:

"1. Vitamins are constant constituents of living tissues. Although present in very small amounts, maintenance of health is dependent on their action.

"2. Vitamins do not themselves contribute to the energy supply of the body, but facilitate utilization by it of proteins, fats, carbohydrates and salts of food.

"3. Proteins, fats, carbohydrates and salts cannot support life without vitamins, nor vitamins without these proximate principles; they are complementary to each other. Without vitamins the body starves.

"4. A distinct relationship exists between the amount of vitamin required and the balance of food in protein, fat, carbohydrate and salt, the efficacy of the vitamin depending on the composition of the food mixture.

"5. A distinct relation exists between the amount of vitamin required and the rate of metabolic process.

"6. Each vitamin plays a specific part in nutrition.

"7. It appears that vitamin A is associated with the metabolism of liquids and calcium, as well as with chemical reactions requisite for growth and maintenance.

"8. Vitamin B appears to be associated with the metabolism of carbohydrates and with the chemical reactions and functional perfection of all cells, particularly nerve cells.

"9. Vitamin C appears to be associated with the metabolism of calcium and with the chemical reactions of growing tissues.

"10. All vitamins are concerned in the maintenance of orderly balance between destructive and constructive cellular processes.

"11. One vitamin cannot replace another although its function may be interfered with by the absence of another.

"12. The final result of their deficiency is the same whatever be the degree of deprivation. The greater the deprivation the more rapid is the onset of symptoms due to it; the lesser the deprivation the slower is the onset of the symptoms due to it.

"13. Each vitamin exercises a specific influence on the adrenal glands; the effect of their deprivation on these organs is one of the most outstanding features of deficiency diseases.

"14. Vitamins influence markedly the production of hormones and all external secretions.

"15. There is reason to believe that the capacity of any given cell for work is impaired in proportion to the degree of vitamin starvation.

"16. Vitamins aid the tissues in resisting infection.

"17. Vitamins, especially vitamin B, induce in the human and animal body the desire for food.

"18. Vitamins are one link in the chain of essential substances requisite for harmonious regulation of chemical processes of healthy cellular action. If the link be broken, harmony ceases or becomes discord, as it may cease or become discord if any other link is broken.

"19. The place of vitamins in human economy must be considered in connection with metabolism as a whole: in connection with their relation to other essential food requisites, with their relation to organs of digestion and assimilation, and with their relation to endocrine regulators of metabolic processes.

"Vitamins are the spark which ignites the fuel-mixture of a petrol-driven engine, liberating its energy; a spark is of no use without fuel, nor fuel without spark — nay, more, the efficacy of the spark is dependent in a great measure on the composition of the fuel mixture.

"What happens (when the body goes sick in consequence of deficient foods, usually ill balanced) is this:—in the absence of vitamins or in an inadequate supply, proteins, fats, carbohydrates and salts are not properly utilized; some are largely wasted, others yield products harmful to the organism. In these circumstances life may be sustained for a longer or shorter

period, during which the body utilizes its reserve stores of vitamins and sacrifices its less important tissue to this end. But there is a limit beyond which such stores cannot be drawn upon, and once reached the cells of higher function — secretory, endocrine and nerve cells—begin to lack vigor and depreciate in functional capacity, although the tissues may hold considerable stores of vitamin. The disintegration process is delayed or hastened, lessened in severity in one direction or increased in another, according as the food constituents are well or ill balanced and according to the character of lack of balance.

"The lack of vitamin disturbs the calcium metabolism; puts an end to regenerative processes; involves without respect the cells of higher function, the functional depression of many, death and failure of a few. The cardinal effect is depreciation of cellular function, and this depreciation is the foundation upon which disease is built.

"The conception of the function of vitamins holds out wide promise in the cure of disease due to or favored by their deficiency in food; for though they cannot restore to life cells already dead, they can restore to normal depressed functional capacity in the general mass of the body's cells. The conception that vitamins provide the cells of the body with power —one might almost say will—to work, has this great merit, that it furnishes a working hypothesis on which to frame treatment.

"The newer knowledge of nutrition is, I am convinced, the greatest advance in medical science since the days of Lister. When physicians, medical officers of health, and the lay public learn to apply the principles which this newer knowledge has to impart, when they know what malnutrition means, when they look upon it as they now look upon sepsis and learn to avoid the one as much as they now avoid the other, then will this knowledge do for medicine what asepsis has done for surgery."

SUMMARY

1. Physical fitness is primarily dependent upon the scientific selection of our food.
2. The chief factor responsible for human deterioration in recent times lies in the unwise choice of food.
3. The diet should contain a sufficient amount of residue-containing foods so as to secure normal bowel evacuation.
4. Care should be exercised in selecting a sufficient amount of alkaline foods to keep the acidity of the urine within normal limits.
5. The diet should contain a proper carbohydrate, fat ratio to prevent the acetone type of acidosis, which is 2 to 1.
6. The diet should be properly balanced with reference to fuel values derived from proteins, fats and carbohydrates. About 2,600 calories daily meets the requirements of the average normal individual.
7. The diet should be derived from such foods as will furnish the required minerals in sufficient quantities to meet the needs of the individual.
8. The diet should also contain foods which will furnish vitamins in ample amounts.
9. The scientific application of the principles of this newer knowledge of nutrition is capable of doing as much for medicine as asepsis has done for surgery.

SAYS SWEETS MUST BE KEPT IN THEIR PLACE

Sweets must be kept in their proper place in the diet of children and that place is as a preservative and flavoring, Prof. Henry C. Sherman of Columbia University, chairman of the Committee on Nutritional Problems, reported at a recent meeting of the American Public Health Association.

"It is a sobering thought that sugar, as it now comes into commerce, is the most completely devoid of proteins, vitamins, and mineral elements of all the foods which we give our children. From the nutritional standpoint therefore it would seem that sugar should be of all foods the most cautiously used in feeding children lest it displace too much of the foods which can do what it cannot in supplying the proteins, vitamins, and mineral elements which the children need so urgently and so abundantly for their healthy growth and development. The argument that candied fruits, milk chocolate and ice cream are foods that convey minerals and vitamins is true only to the extent that these foods contain milk, fruit or other foods which are good sources of minerals and vitamins. The sugar itself contributes nothing except the calories. While active children need calories, they also need minerals, proteins and vitamins to help them grow, and they should be fed largely on the foods which furnish these important substances along with the calories. In general the proper place of sugar in the food supplies and eating habits of children is not in such concentrated forms as candy, nor in the indiscriminate and excessive sweetening of all kinds of foods, but rather as a preserative and flavoring to facilitate the introduction into the child's dietary of larger amounts of the fruit and the milk, the importance of which to child health has been increasingly emphasized with each year's progress in our knowledge of nutrition."—Science Service.

PHYSIOTHERAPY

PAUL ROTH, M. D.*
BATTLE CREEK, MICHIGAN

The fundamental purpose of therapy whether it be medicinal, psychic or physical is to cure, that is, to restore to the normal the functions of the organism or of any of its component parts. The forces of life and health are creative and these alone can heal. Healing is the supreme attribute of Nature. Whatever may be the means employed for curative purposes, it is useful only in so far as it assists Nature in its inimitable and mysterious physiological or curative processes. Nature works according to immutable laws s and physiotherapy endeavors to work in as close harmony as possible with Nature. Any agent which interferes in any way and more than very temporarily with the normal body processes is to some degree injurious and may in time do more harm than good. The action of any therapeutic agent should always be studied in the light of physiology. Were this done habitually we would soon recognize the fact that physical agents are as a rule more dependable in their action and safer to apply repeatedly, and that they should be, whenever applicable, the measures of first choice in the treatment of disease.

Life and health are, above all, dependent upon the many physical agents which are incessantly transmitting vital energy to all living organisms. The chief urge of Nature is the promotion of life and the safeguarding of health. This is the reason why by far the majority of diseases, ailments and injuries heal spontaneously, not only without the help of the doctor but often, fortunately, even in spite of his medication. This is spontaneous physiotherapy pure and simple.

Imagine what might result from the timely and intelligent application of measures which would at least give Nature a better chance to work. Not only would many more cures be effected and recovery would generally be hastened, but more of the conditions which seem to be hopeless would yield to suitable physiotherapeutic treatment used either alone or in conjunction with medicinal agents.

That miracles of healing are not a thing of the past is a fact of almost daily observation by the busy practitioner. It is as easy to explain modern miracles as the ones of old. We do not have to admit in any case that the laws of nature were ever suspended. It is interesting if not significant to note that in the majority of cases recorded physiotherapeutics were in evidence. Recall, for instance, the baths in the river Jordan, the air baths and the sun baths in the pool of Bethesda taken by the multitudes who, evidently naked, were patiently waiting day after day for the chance to be first in entering the troubled waters. Even the psychology of it all must have been of a tremendously healing influence. That is the "faith" so-called which then as now removes mountains, figuratively speaking.

The first record of successful resuscitation by means of artificial respiration, essentially a physiotherapeutic procedure, two thousand years ago has been more minutely described than could have been imagined by any of us until recently. The prophet Elisha proceeded in an ingenious manner. The record shows beyond question that he forcibly inflated by his own mouth the lungs of his patient. The CO_2 laden breath furnished both the needed mechanical and the chemical stimuli which restored respiration. That is not all, the prophet appreciated one thing which is today commonly overlooked under such circumstances, and that is the capital importance of heat as a biologic stimulant and he therefore saw to it that his subject was kept warm. The method he used at first sight seems as ridiculous as it is simple, but must now be admitted to be absolutely sensible. The contact of his body resting over the child not only furnished the needed warmth, but also a periodic abdominal compression and decompression admirably timed and synchronizing his own respiratory movements with the inflation and deflation of the lungs of his patient. In completeness and attention to important details the method is surely equal if not superior to the best of the modern improvished methods. It seems that this prophet must have learned of this interesting method from his predecessor Elija, who is credited with having used a similar though less minutely described procedure of resuscitation.

* Dr. Roth is a graduate (1904) of the American Medical Missionary College, which some years ago had been affiliated with the Medical Department of the University of Illinois. For the past ten years he has devoted considerable time to Oxygen Therapy and the perfection of apparatus for its administration. From 1910 on, he has been the Director of the Clinical Laboratories of the Battle Creek Sanitarium; twenty-five years instructor in Physiotherapy, especially Hydrotherapy, and also Metabolism at the Battle Creek Sanitarium and the Battle Creek College.

I was informed that a colleague of mine (Dr. J. E. Cooper, chief of the Obstetrical Department of the Battle Creek Sanitarium) has, a number of times, resorted to this ingenious mouth to mouth method of lung inflation with splendid success in the resuscitation of the new born. He merely uses a few thicknesses of gauze to breathe through while inflating, and aspirating alternately the lungs of the child.

Some drugs unquestionably have certain distinct specific properties and advantages which cannot be duplicated by any known physiotherapeutic agent, but the subject of Medicinal Therapeutics will be ably discussed by another speaker. I only wish to remark that it should be the aim of the clinician, especially in chronic or protracted cases, to secure whenever possible relief through physical rather than through medicinal measures. In many institutions the use of drugs has been very much reduced with remarkable results by the substitution of physiotherapeutic measures, especially for the relief of pain, nervousness, agitation and insomnia.

Time will not permit to even present a list of the numerous physiotherapeutic procedures which have proven to be of value and which are being made available in all modern medical and surgical institutions and hospitals. Manufacturers, for pecuniary reasons of course, have been diligent in supplying the need and the profession is surely much indebted to their expert knowledge and contributions. They have created a demand which, unfortunately, has not always originated, as it should have, in medical and scientific circles.

I will not discuss here institutional and office equipment, that is relatively well taken care of. If in doubt as to the actual value of certain apparatus or procedure, a special and very able committee of the American Medical Association is at your disposal to give you information and help in keeping clear of the worthless. It is the practitioner with limited facilities who is most in need of assistance. He must first of all develop an intelligent faith in the forces of nature. He must be honest with himself and consider it an obligation to educate his patients to a life in closer contact with nature and its curative agents. This education is by far the most crying need in, as well as out of, the medical institutions. Every member of a medical staff should be a physiotherapist.

While it may be granted that in institutional work an elaborate equipment is desirable and the expense it entails justifiable, we must not ignore the fact that by far the great majority of the most valuable therapeutic effects which are commonly desired can be secured from a few simple procedures. The successful practitioner is the one who is thoroughly acquainted with the therapeutic properties and effects of the relatively few standard and well established procedures (or medicaments) and who has mastered the art of their application.

The progressive doctor is not the one who is ever ready to try anything merely because it is new, often ignoring its uses and correct method of application. It is just as easy to become qualified to administer physiotherapeutic procedures as to handle drugs in a commendable manner. Unfortunately, there is still at the present more time and effort devoted to the training of the medical students in the use of drugs than in the application of physical therapeutic measures. Good therapeutics, whether it be by means of medicinal agents or by physical measures, is dependent first on a thorough knowledge of physiology and next on a knowledge of pathology and correct diagnosis. The practitioner who thinks, and attempts whenever possible intelligently to apply the best remedy for the removal of any recognizable morbid factor, will never get into a pernicious rut. He will soon find out that although disease works in a multiplicity of ways it can best be combatted by means of a relatively few dependable therapeutic agents.

All therapeutic agents restore harmony in disturbed body functions fundamentally either by increasing or by depressing more or less specifically the activity of one or more body mechanisms. It is evident that the localization of effects is often highly desirable and to this physiotherapeutic measures are well adapted.

Another great advantage of physiotherapeutic agents over drug medication is that they are totally exempt from toxic effects. This is of tremendous importance, especially in protracted cases, and not infrequently also in acute conditions accompanied by any form of severe toxemia.

On the other hand, physiotherapeutic agents are not totally free from possible pernicious effects. They are powerful measures which when misapplied or administered in improper doses can readily become very detrimental and even destructive. It must also be admitted that the application of physiotherapeutic procedures demands a training and skill which is as yet sadly lacking among graduates in med-

icine and surgery. The result is that much of this form of therapeutics, if resorted to at all, is entrusted, with little or no medical supervision, to the nurse or to even less qualified persons. This state of affairs is fundamentally responsible for the thriving business which has been built up by the quack. How unfortunate it always is when undue professional conservatism allows the laity to call for improved therapeutic service before the doctor has awakened to the demands of scientific progress and before he is prepared to take the lead. The demands of the public may often be unwarranted or unwise, but are not infrequently justifiable.

Physiotherapy is unquestionably more ancient than drug therapy. For many centuries it has had in the medical profession most reputable advocates the long list of which is headed by the immortal Hyppocrates, the Father of Medicine. Nevertheless, physiotherapy has at times met with considerable opposition. For many years the layman felt but little confidence in a doctor who did not dispense some sort of medicament. Today the public is rapidly being educated to respect, above others the practitioners who prescribe physiotherapeutic measures.

At this time when the medical profession is called upon to suggest means of reducing the cost of medical care, we should recognize a golden opportunity to bring home the truth that: (1) The cost of illness can be enormously reduced by right living and the adoption of simple preventative measures. (2) Life and health are Nature's gift and its agents are dependable and in general the most economical in the treatment of disease. (3) Disregard of biologic laws is costly. The widespread use of physiotherapy should be the means of educating the public in right living and in the prevention as well as in the cure of disease. Furthermore, in this campaign against the high cost of medical care it is folly to ignore the fact that inexcusably often illness is brought about by years of illspent time and money. Why should the medical profession or the community be expected to provide relief without having the right to demand the co-operation of the public for the prevention of disease? Let the public join hand with the medical profession in solving this big problem which might be more wisely and appropriately called "the high cost of sickness" rather than the "cost of medical care."

Physiology and biology should be taught to every student in our schools and colleges. The curriculum in the ever increasing number of our vocational schools should include practical instructions in home nursing and the preparation and application of such simple physiotherapeutic measures as are generally called for in the case of illness in the home: compresses, fomentations, foot baths, simple rubbing, dry and moist, etc.

The study of the border line between health and disease should be emphasized in medical education. Much time in clinical demonstrations is devoted to the rare and spectacular cases. While hopeless conditions must ever receive due attention and stimulate research, the most productive field for medical progress will ever be prevention in the range of the common nonspectacular borderline cases. It is in this important battle ground especially that physiotherapy always excells and in which the abuse of drugs is as prevalent as uncalled for.

PHYSIOTHERAPEUTIC AGENTS AND SOME OF THEIR OUTSTANDING ADVANTAGES

Air: There is no substitute for fresh air either in health or in disease. Through the reflexes which it can induce instantly when applied cold, respiratory and general systemic exhilarating and tonic effects are secured. Used in conjunction with heliotherapy, most remarkable nutritional and healing properties are obtainable. The systematic and oft repeated short exposure of the entire skin to cold air and light is most valuable in training or re-educating the skin in its vital function as middleman between the body and its surroundings. This training is one of the most important factors for the prevention of "colds" because the defensive mechanism against "colds" is largely under the control of the skin.

Water: Hydrotherapy excels and has no second as a therapeutic agent in the management of fever, inflammation, pain and a host of conditions, either general or local, which call for measures to excite or depress vital functions. Water comes nearer to being a panacea for every ill than anything else can ever be.

Light: Strictly speaking this agent is essentially the primary source of energy, life and health. As physicians, to become true "sun worshippers" in the care of human ills is paying tribute to the Great Physician. In our armamentarium against disease "Let there be Light."

Electricity in its various forms is a marvelous therapeutic agent. Its effects are quite specific: The galvanic, for the stimu-

lation of nutritional processes in the tissues. The faradic and sinusoridal as a source of impulses for the excitation of muscular function. Diathermy and various forms of the high frequency current enable us to affect thermically even the remotest parts of the body.

Exercise: Sedentary habits are the fundamental cause of the general lowering of vital energy in a multitude of individuals. Torpidity of functions is evidenced by a subnormal basal metabolic rate and the well known symptoms which accompany it: General suboxidation, subnormal temperature, low blood pressure, weak pulse, torpidity of the skin, liver and kidneys, constipation, intestinal and general toxemia, etc. These conditions demand primarily physiotherapeutic treatment by exercise, work and play.

I must refrain from further arguments though much could be said also about friction, vibration, massage and many mechanical and manual applications. In this group of procedures various "cults and beliefs" should recognize a practical, effective and matchless method of "laying on of the hands to heal the sick" which is worthy of the present scientific and enlightened age.

SUMMARY

Physiotherapy makes use of the same agents that are primarily indispensable for the promotion of life, consequently these agents work in greater harmony with nature and with greater safety than medicinal agents can do.

Physiotherapy should be the method of choice whenever possible and its use demands as much training as the intelligent use of medical agents. This training should receive more attention in the Medical College and in a very simple way should be introduced in our schools and colleges. The public also should be educated especially in the prevention of disease through greater respect and attention to nature's laws.

The most valuable physiotherapeutic agents: Air, light, water, work and play, etc. are Nature's gifts to man. In educating the public to partake freely of this fount of life we strike directly at the chief cause of the formidable cost of illness.

The chief physiotherapeutic agents and their advantages are briefly mentioned.

NEW INSTITUTE TO STUDY PROBLEMS OF THE EYE

A great step forward in the study and treatment in America of diseases of the eye is marked by the dedication of the Wilmer Institute of the Johns Hopkins University and Hospital in Baltimore. Before the establishment of this Institute, such opportunities in our country were far behind those of European countries. Individual men specializing in the subject were doing splendid work at various places, but no one center existed.

The new Institute was founded and built by contributions from former patients and friends of Dr. William Holland Wilmer, one of the country's leading eye specialists, who is the head of the Institute which bears his name. The location of the Institute is of especial advantage because the means for caring for patients and the general medical facilities of a great university hospitl are available.

The usual equipment and construction of the Institute is the result of much thought and study on the part of Dr. Wilmer who spent two years in Europe visiting various ophthalmological centers before the Institute was built.

A special camera has been devised in the research department to record pictorially operations on the eye. This is of immense educational value. Only a very few persons can observe closely the details of a surgical operation with safety to the patient. This is particularly true of delicate operations on the eye. The new camera will give future surgeons an opportunity for observation of every detail, which is a vital part of their training.

Over 50,000 persons in the United States today have defects of vision so great that they cannot engage in pursuits requiring vision. Many thousands more are seriously hampered in health, happiness, and earning power by poor eyesight. For these people as individuals and for the communities in which they live, the Wilmer Institute has tremendous significance. Research now being carried on at it is concerned with glaucoma, cataract, the effects on the eye of aviation, and many other problems of vital importance to humanity.—Science Service.

THE NEW U. S. PHARMACOPOEIA

Physicians and pharmacists all over the country have been sent score sheets on which to record the popularity of various drugs and remedies which will be considered for admission to the new U. S. Pharmacopoeia, to be issued shortly. The U. S. Pharmacopoeia is the collection of formulas for drugs and remedies recognized as standard by doctors and pharmacists of the United States. It is official but has no connection with the Federal government, being published by authority of the United States Pharmacopoeial Convention, a body composed of delegates from national or state associations of physicians and pharmacists, schools of medicine and pharmacy, and by certain government services. The convention, meeting once every ten years, selects a Committee of Revision to make desired changes in the Pharmacopoeia then in force and to issue a new one. It is to aid this Committee, to be selected by the Convention which will meet in Washington next May, that the present questionnaire has been sent out. The next U. S. Pharmacopoeia will be the eleventh.—Science Service.

PSYCHOTHERAPY

O. R. YODER, M. D.*
KALAMAZOO, MICHIGAN

This address is a discussion of the principles of psychotherapy which can be used by the general practitioner in general practice. In the temple of Esculapius, during the fifth century, scientific medicine had its origin. The temple physicians chose to practice their calling according to their own judgment, using such forms of treatment which they considered rational, without the dictation of the priests. They recognized the fact that the mind had some influence over the body, but they were content to leave this form of treatment to the clergy and ever since it has been used by faith healers and magicians to defraud the innocent.

Various attempts have been made to establish psychotherapy scientifically. Mesmer, in 1736, established Mesmerism. This was then followed by hypnotism, and both have been discarded. Christian Science, which is more of a religion than a method of healing, made a contribution, in that it removed the fear of disease from the individual. Then came Freud with his study of the unconscious, based largely on the sex instinct. He pays little attention to the equally important instincts, those of preservation and the herd instinct. So we all began to look for suppressed complexes and usually these are so nauseating that one feels like repressing them still farther instead of bringing them to the conscious life of the individual. Psychoanalysis already is being discarded with mesmerism and hypnotism and it has made its contribution.

Jung has a more logical conception of mental disturbances. He believes that our complexes, instead of being unconscious, are conscious. Our conflicts are a daily occurrence. We have a struggle to survive. There are many unhappy marriages and complex social and financial difficulties. These are difficulties as easily seen by the general practitioner as by the specialist.

Psychotherapy means treatment with the mind; that refers to the mind of the operator and not to the mind of the patient. Every successful physician is a good psychotheraputist, even though he does not recognize it as such. The medical man will admit that it makes considerable difference if his patient has faith in his physician and a desire to live. The surgeon usually tells a patient to disregard his pain and use an injured muscle instead of resorting to a sedative.

Treatment with the mind then becomes very simple—so simple, in fact, that I see no reason for obscuring its fundamental principles with pseudo-scientific terms or involved discussions which only the superintelligent can understand. It is nothing more than a sympathetic understanding of human behavior united with good judgment and common sense.

The first important thing with this form of treatment, as with any other, is diagnosis. The reason the cults fail is because they do not differentiate one disease from another and use the same kind of treatment for all. Our judgment tells us that we cannot hypnotize virulent organisms, neither can we relieve a toxic condition by releasing complexes without removing the source of the infection. As we learn more about blood chemistry and as our laboratory methods become more perfected, we will find more and more organic bases for mental disease. There is nothing more humiliating to the surgeon than to operate on the patient and not find the source of his disease; neither is there anything more humiliating to a psychiatrist than to treat a patient mentally and find at autopsy that he died of generalized carcinomatosis.

Supposing, then, we have a condition where no organic lesion can be demonstrated and the patient must be treated with the mind. The first thing necessary is time. Many cults flourish because physicians do not take time to listen to the emotional ills of their patients; or, perhaps as soon as the condition has been recognized, the doctor is already planning to get rid of them as soon as possible. We see many patients who have had many examinations and forms of treatment and have never had an opportunity to tell their story.

I believe in the psychic effect of drugs and physiotherapy. The general practitioner must have some pay for his services and people are not educated to the place where they will pay for advice; they usually refuse to accept the latter and the bill remains unpaid. We have been accused of neglecting our patients, so we make an effort to give each patient some

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form of tangible treatment, usually in the form of a tonic. The relatives are content and the patient is satisfied because she is getting some medicine. Frequently a patient does improve sufficiently to go home and she tells her physician about the wonderful medicine used to cure mental disease and he, in turn, will write to the institution, humbly asking for the prescription, when in reality it was used only for psychic reasons. The therapy used always receives the credit and never the therapeutist.

The first principle of psychotherapy is re-education. In order to have any form of mental disease, a certain amount of education is necessary; obviously this is wrong and the individual must be re-educated. In this the patient must learn to know his relation to his fellow men; he must learn the harm of some pleasures and the necessity of bearing some pain. The truth in regard to his condition is revealed; this is a principle quite fundamental in the Scriptures, "Know the truth and the truth shall make you free."

We admit that there is much to heredity and that a resistance to a mental disease is carried from one generation to the next; this cannot be changed, but we can always change the environment. After all, the patient is not concerned about the fact that his uncle had dementia praecox, or that his father was an epileptic; what he wants is a relief from his symptoms. Many times psychiatrists are more interested in diagnosing and filing than they are in treating the patient's condition.

This, then, brings another important principle in psychotherapy, which is readjustment to environment. If the patient has had an honest opportunity to present his trouble to his physician, it is usually found to be tangible. There are many domestic problems or economic difficulties. The patient may be trying to hold a position requiring considerable mental stress when he only has the mental ability to do things with his hands; or the routine of life might be altered with travel and added experience. The physician has educational experience and a wide knowledge of human nature; this, then, can be used to bring about a state of harmony.

In an institution the occupational therapy department is an aid in the process of re-education, the social service in re-adjustment, but in many somatic diseases it is not necessary for a patient to enter a hospital. If a physician is able to treat minor organic diseases in the home, he should also be able to treat some forms of mental trouble.

We are now concerned about correct diagnoses and successful treatment after the disease has once been established. But the successful practitioner of the future will be the one who can prevent illness. Preventive medicine includes that of the mind as well as the body. In our schools we teach cleanliness of the body; we have fly-swatting contests, and systematic exercise; why not a little more mental hygiene? Among children there are temper episodes, disobedience, behavior problems which need attention, for it is the peculiar child who will be the future mental patient and the delinquent child, the future criminal.

I beg to call your attention to one of the great problems of our state and commonwealth. Do you know that of the 6,852 hospitals in the United States, only 8 per cent are for the care of mental patients; that during 1928 the number of patients in mental hospitals exceeded those in general hospitals by more than 18 per cent; that the increase of patients in nervous and mental hospitals was almost twice that of patients in general hospitals? During 1928 one out of every 325 people was a patient in an institution for mental trouble and one out of every 500 people was a patient in a general hospital. In each generation one out of every 22 individuals will spend some time in a hospital for nervous and mental diseases.

The cure of any mental disease is questionable. Many honest and sincere physicians have called patients cured and presented interesting results, when in reality the condition has only been arrested to appear later. Prevention is the only solution, and this becomes the duty of all those who are interested in human welfare. The hospitals of the State of Michigan have established mental clinics for no other purpose than to call attention to this problem. We vaccinate to prevent smallpox, use antitoxin to prevent diphtheria, why not mental hygiene to prevent mental disease?

The general practitioner can do more to prevent mental disease than the specialist. He is in contact with every member of the family; he knows their bad family relations, their quarrels, their problems and their ideals. By friendly suggestion he may be able to prevent many irresponsible acts.

In every community the general practitioner will see individuals with outbursts

of temper, depressions and gloom and sorrow; or, again with a marked feeling of exhilaration. There is the mother who must be advised in regard to her dangers when she reaches the menopause, or the youth in regard to the problems of adolescence.

Every physician daily comes in contact with those selfish, egocentric adolescents, high in their self-esteem, with no regard for law and order. Mental hygiene might prevent a future criminal. There is the day-dreamy child, excelling in her classes, who should be taught to do things with her hands. There are many narrow individuals who have no vision of life; they should be led to see great spaces and great things. Widening the interests of these would be preventive medicine. Advice to parents in regard to child training may aid some. There are those petted children who will not be able to become a part of the herd because of their shielded and immature personalities, and during conflict they will always retire to the family or flee from reality in a defense mechanism. We must occasionally offer a word of praise to those boys and girls who feel unworthy and inferior. Life for them, if they must stand alone, will be very difficult and complex. These are the individuals who may be the future mental patients.

The successful physician is the one who will choose such medicine or such surgery, or use such suggestion which will bring good results. There is no single treatment for any disease. Treatment with the mind includes the application of knowledge of all kinds for the benefit of man. It includes all suggestion which appears reasonable; it includes all the knowledge of experienced men; it is constantly changing and forever improving; it had its origin in religion and its application retains a similar sincerity and dignity.

MEDICINAL THERAPEUTICS*

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It is a formidable task to attempt the presentation of even the principles of drug therapy in the brief time allotted to us. Rational drug therapy, in spite of attacks by nihilists and cultists, is easily defended and vindicated. We have no reason to be apologetic when we consider the enormous advances made by pharmacology in the last decade. But it is a difficult task to sift from the chaff of tradition, the grains of truth concerning the value of drugs in treatment. Unquestionably, our forefathers used drugs too freely and with little discrimination, misled, as we too may be, by the fallacy of "post hoc ergo propter hoc." In the pathological anatomy period, there was a tendency to use drugs too little. During the last decade, clinical medicine has been more interested in disordered function than in disordered structure, and consequently there have been many striking advances in treatment.

In some diseases, drugs play little or no part in affecting the course of the illness, yet in the management of most cases, the proper drug, given in the proper dose, at the right time, may either cure, relieve or console. Consolation is not a minor affair, particularly in dealing with patients who have a low level of intelligence. The public still has so much faith in drugs that millions of dollars worth of nostrums are sold annually. Hence we must recognize an insistent demand for symptomatic treatment. Ideally, therapy should be a science, but practically, it is very much of an art. No man can master the use of more than a very few drugs. He should use them singly if possible, the indications for their use should be clear, the dosage should be adequate, and their untoward results thoroughly appreciated.

We propose to discuss (1) the use of a few specific drugs; (2) the use of drugs to correct disordered function; (3) the use of drugs based on certain pathological indications; and (4) their place in alleviating distressing symptoms.

ETIOLOGICAL CONSIDERATIONS

The most successful type of drug treatment is that directed towards the destruction of parasitic invaders. No one doubts the efficacy of male fern in tapeworm or of santonin in ascaris infestation. Nor does any reasonable person doubt the usefulness of quinin in malaria, emetin in amebic dystentery or of arsenic, bismuth,

* Presented at the 109th Annual Meeting of the Michigan State Medical Society, Jackson, Michigan, September 17, 18, 19, 1929.

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and mercury in syphilis. Yet, these specific drugs often fail because they are improperly used.

QUININ IN MALARIA

Malaria was once very prevalent in Michigan and is even now by no means a rare disease. This is due to the recent influx of laborers from the flood regions of the South. Every doctor in Michigan knows that quinin is a specific for this disease, yet there is very little uniformity in the mode of its administration. The method advised by the National Malarial Committee in 1918 is so simple and so effective that no other need be considered. Give the adult patient 0.6 gms. (10 grains) of quinin sulphate by mouth three times a days for three or four days. Follow this by 0.6 gm. (10 grains) every night for eight weeks. This will cure 90 per cent of all cases. If the drug is continued for fifteen weeks, 100 per cent of all cases will be cured.

EMETIN IN DYSENTERY

Acute amebic dysentery is rarely seen in Michigan, but shronic amebic colitis is not uncommon, as was shown by Dock and Freund, several years ago, at Ann Arbor. Fortunately we have a reasonably effective specific in emetin. For over ten years, we have used emetin-bismuth iodid with satisfactory results. Every morning, for the first six days, emetin-hydrochlorid is given intramuscularly in doses of 60 mgm. (1 grain). At the same time, we give emetin-bismuth iodid by the mouth, using the B W & Co tablet, once daily after the mid-day meal. For four days we give 15 mgm. (¼ grain), during the next four days we increase the dose to 30 mgm. (½ grain), and for four more days we give 60 mgm. (1 grain). After this, we wait a month, and if amebae or cysts are still to be found in the stools, we repeat the treatment. In chronic cases two or three such courses are necessary to effect a cure.

SPECIFICS FOR SYPHILIS

We shall merely consider a few of the problems of syphilis in their relation to internal medicine. We are fortunate in having for its cure four distinctly effective drugs, arsenic, mercury, bismuth, and potassium iodid, each having its own definite field of usefulness. We all recognize the importance of the earliest possible diagnosis of syphilis, and its intensive treatment by arsphenamin, aided by bismuth or mercury. Nevertheless, the duty of more thorough and prolonged treatment should be emphasized. Too often a patient, after a brief course of intensive treatment, has shown so much clinical improvement, that he is allowed to wait for the development of fresh symptoms. Nor is a negative Wassermann test after a brief course of treatment adequate insurance against future recrudescences of the disease. The patient should be watched clinically and serologically for many years. It is not within the scope of this paper, to recommend the use of any especial form of arsenic, bismuth, or mercury, to be used exclusively. This problem should be solved after a study of the needs of the individual case. The internist is more likely to be concerned with visceral syphilis than the syphilographer, and here we must sound a word of warning against routine or standard methods of treatment. Hepatic syphilis is much more common than is generally realized, and it is definitely harmed by arsphenamine, this drug being a powerful poison to the liver cells. The response to potassium iodid and mercury is usually good if the disease is not too far advanced. We would particularly stress the value of large doses of potassium iodid. So too in cardiovascular syphilis, arsphenamin in the usual dosage is harmful. Large doses of potassium iodid with small long continued doses of mercury or bismuth will give far better results. If arsphenamin is to be used, it should only be after a course of mercury or bismuth, and then with a low initial dosage. Pulmonary syphilis improves rapidly on iodid alone, after which long courses of mercury or bismuth are advisable. The treatment of neurosyphilis is too complicated to discuss in the scope of this paper.

REMEDIES ALMOST SPECIFIC

Ten years ago, diabetes mellitus, pernicious anemia, and pernicious vomiting of pregnancy were the despair of the physician. Since that time, three valuable discoveries have demonstrated that the science of therapeutics is not at a standstill. Insulin, properly administered to control hyperglycemia on a maintenance diet, increases the life tenure of the diabetic enormously, and it can properly be termed a specific in the management of diabetic coma. Liver extract seems to restore the blood and general health of the pernicious anemia patient, provided the spinal cord changes are not too far advanced. Moreover, in secondary anemia, liver in conjunction with large doses of iron, e. g., the pill of ferrous carbonate, or a mixture of

iron and ammonium citrate, appears to hasten regeneration of hemoglobin. It would be difficult to estimate the thousands of human lives that have been saved by the treatment of pernicious vomiting of pregnancy with intravenous dextrose solutions. The dehydrated severely toxic patient will show a miraculous improvement within a very few days. A successful method is the intravenous injection of 1,000 c.c.s. of 5% dextrose in physiological saline solution, to be given daily until the urinary output reaches 1,000 c.c. a day. All of these measures have been fully discussed at recent meetings, and I merely mention them to prove that drugs, scientifically used, may produce marvellous results.

DRUGS IN DISORDERS OF FUNCTION

The most important clinical manifestations of disease are those produced by disordered function. The importance of correcting these disturbances is that we make a break into the vicious circle of disease. The correction of an auricular fibrillation may cure the dyspepsia produced by a congested liver and portal system. Only a few such disturbances will be discussed at this time.

DYSFUNCTIONS OF THE THYROID GLAND

Striking advances have been made in the last decade in the mangement of dysfunctions of the thyroid gland. In the prophylaxis of endemic goiter, the evidence is convincing that the administration of 10 mgm. of iodin a week during childhood will eliminate this distressing affliction. Any form of iodin will prove effective. The problem of colloid goiter is not so simple. In the young adult, 20 to 30 mgm. (1/3 to ½ grain) of iodin a week is often effective but if the disease is of several years' duration, it is advisable to add thyroid extract, 16 mgm. (¼ grain) a day. The most spectacular advance in drug therapy for many years has been the introduction of the use of iodin in the management of exophthalmic goiter. The patient, at rest in bed, is given 1 to 3 c.c.s. (15 to 45 min.) liquor iodi compositus each day, the amount depending on the severity of the case. In a week or ten days, the patient is so much improved that a subtotal thyroidectomy can be done with safety. The operative risk has been greatly lowered and the dreaded postoperative toxemia prevented. The use of the iodin in small doses after the operation is often desirable. Lugol's solution may properly be considered a specific for the toxic crises of exophthalmic goiter. Prior to 1922, many patients died of these crises before operation could be performed. Now, by the administration of fluids intravenously, morphin subcutaneously, and liquor iodi compositus in large doses, the entire picture changes in a few days and the patient is safe for operation.

HYPOTHYROID STATES

Last year, in this section, the myxedematous states were fully discussed. Treatment by substitution therapy, i. e., by desiccated thyroid extract, is of appreciable value. There are a few fundamental points to remember when using this drug. Do not prescribe full dosage at once if the basal metabolic rate is very low, or if there is pronounced anemia. Under such circumstances, the cardiovascular system is unable to withstand the strain produced by full dosage. Commence with small doses and increase until there is clinical improvement, a matter of just as much importance as the basal metabolic rate. In most instances 0.1 to 0.3 gm. (1½ to 5 grains) will be an adequate daily dose. Become familiar with a preparation of some reliable firm and stick to its use. The official desiccated extract is probably of more clinical value than the more highly standardized thyroxin.

CARDIAC DYSFUNCTION

It would be difficult to attempt the treatment of cardiac decompensation without digitalis. The use of this venerable drug is much more precise and scientific than it was fifteen years ago, thanks to the work of Eggleston and others. Broadly considered, the indication for its use is myocardial insufficiency, with or without valvular disease. We are much perplexed by the multiplicity of digitalis preparations detailed by enterprising manufacturers. Only two preparations are necessary—a pill or tablet of powdered digitalis leaves, and a good standardized tincture. My own preference is for the powdered leaves, as being the simplest, least expensive, and most accurate method of use. If the patient is very ill, the body weight method of Eggleston is commendable, producing a digitalis effect within twenty-four hours. If the decompensation is slight or moderate, one may use smaller doses, e. g., 0.1 gm. (1½ grains) three times a day, until digitalis action is apparent or until toxic signs appear. It is difficult to explain the carelessness of our profession in the use of digitalis, when we realize that

Withering, who introduced the drug into clinical medicine, wrote in 1785: "Let the drug be given in doses of one to three grains of the powder, twice a day. Let it be continued until it acts either on the kidneys, stomach, pulse or bowels. Let it be stopped on the first appearance of these effects. About thirty grains are necessary to produce nausea." We cannot improve upon these directions today.

WHEN DIGITALIS FAILS

When digitalis fails to produce diuresis, we have occasionally obtained good results by giving ammonium chloride or nitrate 1 gm. four times a day and on the third day commencing novasurol (merbaphen), ½ c.c. intravenously. Next day we give 1 c.c. and repeat this dose every two or three days until the edema disappears. Salyrgan, a similar mercurial compound, acts in the same way and is given in the same dosage. It is said to be less toxic. The caffein and theobromin derivatives, e. g., theocin 0.3 gm. (5 grains) or theobromin sodio salicylate 0.6 to 1 gm. (10 to 15 grains), given by mouth are occasionally effective, but very frequently are not well tolerated by the stomach.

QUINIDIN

The enthusiasm following the earlier statements concerning the efficacy of quinidin has definitely waned. Its use should not be considered where there is evidence of a badly damaged heart muscle. It frequently relieves paroxysmal attacks of auricular fibrillation, and where auricular fibrillation persists after a thyroidectomy, it should be tried. It often relieves annoying extrasystoles. It has a definite field of usefulness in the treatment of the paroxysmal tachycardias. If the type is auricular, 0.4 gm. (6 grains) once or twice a day may prove effective. If the tachycardia is ventricular, quinidin should be given in full doses until the rhythm is normal, after which, a small daily dose, e. g., 0.2 gm. (3 grains) will prevent recurrences. In using the drug, it is customary to give 0.2 gm. (3 grains) and to repeat the dose in four hours. If the patient is not sensitive to the drug, 0.4 gm. (6 grains) should be given three times a day until the rhythm is normal.

ESSENTIAL HYPERTENSION

There is a type of essential hypertension occurring in tense, highstrung individuals in whom no renal damage is apparent, that can be definitely lowered by small doses of pheno-barbital (luminal), or by potassium bromide. The relief of the subjective symptoms is very much appreciated.

RELIEF OF ANGINA PECTORIS

While we may not be able to cure angina pectoris by drugs, they certainly play an important role in keeping the patient comfortable. The theobromine derivatives seem to facilitate coronary flow and to decrease the frequency of attacks. Euphyllin, 0.1 gm. (1½ grains) three times a day has seemed to be very valuable. The value of the time-honored nitrites in lessening the severity of the attacks is well known. A nitroglycerin tablet dissolved under the tongue usually gives prompt relief.

DRUGS AFFECTING RESPIRATORY FUNCTION

We have a few useful agents which modify the function of the respiratory system. The researches of Henderson have demonstrated the value of a mixture of carbon dioxide 5% and oxygen in stimulating respiration in asphyxia of various forms. Every hospital should have an H. H. inhalator in the emergency room and have an attendant trained in its use. The evidence, both experimental and clinical, is convincing that this procedure is of great value in postoperative atelectasis and in the so-called postoperative pneumonias. The breathing becomes deeper, the lungs dilate, bronchial peristalsis becomes more active, and thus the bronchioles are drained. Undoubtedly, this procedure will assume a definite place in the treatment of pneumonias, especially those of the influenzal type. The distressing dyspnea of bronchial asthma is relieved very promptly by the injection of 0.3 to 0.6 c.c. (to 10 minims) of liquor epinephrin (1-1,000). Ephedrine, 30 mgm. (½ grain) by mouth acts in a similar manner, giving a slower but more prolonged relief. Atropin is still largely used as an antispasmodic in asthma. Given in large doses, it is of value in the acute edema which occasionally comes on during the first day or two of pneumonia, but it is of little use in the late edemas.

DISTURBANCES OF GASTRO-INTESTINAL FUNCTION

A very large percentage of the dyspepsias which we see are functional and are the expression of a disordered nervous system. In a way, the diagnosis of a gastrointestinal neurosis is apologetic, but it is certain that if we correct our patient's life adjustments, and restore the sleep hab-

it by small doses of a sedative, such as pheno-barbital (luminal) or sodium bromide, the results are distinctly satisfactory. The sovereign antispasmodic, belladonna, is useful in depressing vagus tone and in lessening motor and secretory functions. In such conditions as cardiospasm, pylorospasm, peptic ulcer with spasm, or spastic colitis, belladonna pushed to its physiological effect is a very effective and useful drug. The Sippy management of ulcer popularized the use of alkalies. The neutralization of excessive acid by soluble alkalies e. g., sodium bicarbonate or by the insoluble alkalies e. g., magnesium oxid, or calcium carbonate, permits the pylorus to open more readily and thus allow the normal regurgitation of the alkaline duodenal contents. Certainly alkalies give symptomatic relief and probably promote healing in ulcer, but the danger of alkalosis from the use of too much soluble alkali must be borne in mind. Hydrochloric acid does not hold as prominent a place as formerly, but in certain demonstrable achylias it may give symptomatic relief if given in large doses. Purgatives have gone out of fashion with medical men on account of their vicious action on the colon and rectum. However, salines have a place, e. g., where there is marked edema, where a rapid emptying of the colon is desirable, or where a chronic toxemia exists, such as uremia. In the aged, laxatives are often desirable, cascara and senna being the most effective and least harmful. Mechanical aperients such as liquid petroleum and agar may be helpful in slight cases of constipation.

PATHOLOGICAL INDICATIONS

The great development of pathological anatomy has begotten a certain heartlessness in therapeutics, and this is a very natural reaction. In the control of inflammatory processes, we can help very little with drugs. Intravenous antiseptics have not lived up to the high expectations which heralded their advent. However, many consider mercurochrome soluble, given intravenously, in doses of 5 mgm. per kilo body weight, of distinct value in the treatment of kidney and bladder infections, especially those caused colon group of organisms. Methamine is occasionally helpful as a mild urinary antiseptic, but more often fails of its purpose. Occasionally, we can remove the products of infection by drugs. Thus, potassium iodid is exceedingly useful in promoting the absorption of gummata, and given in large doses intravenously hastens the absorption of exudates in some forms of neuro-syphilis. In the control of atrophy and fibrosis, we can do little by drugs. Cerebral edema can be relieved considerably by drugs, hypertonic saline, and 50% dextrose solution intravenously being especially effective in lowering intracranial pressure. Introduced by Cushing, and popularized in Michigan by Peet, it has materially lowered the mortality following head injuries. Another pathological condition that is considerably controlled by drugs is internal hemorrhage, gastro-intestinal or pulmonary. Opium quiets functional activity in the various organs, promotes mental calm, and induces sleep.

SYMPTOMATIC TREATMENT

There has been a tendency to condemn symptomatic treatment because it is unscientific. Some of this criticism is unsound, for symptomatic treatment is often of the utmost value. For example, the insomnia of typhoid or of pneumonia may be so exhausting as to prevent recovery. Moreover, pain is wholly evil in its effects, breaking rest and sleep, disturbing digestion, accelerating exhaustion, and hastening death. While we must appreciate the etiology of pain and treat it rationally, yet it is our duty to relieve it wherever possible. In acute conditions that will last but a brief time, e. g., grippe, acute headache, myalgia, neuralgia, herpes zoster, etc., the synthetic analgesics such as acetphenetidin, acetyl-salicylic acid, or pyramidon in moderate doses give comfort and have few real disadvantages. Sodium salicylate is almost a specific for the joint pains and fever of acute rheumatic fever. Given in doses of 0.6 gm. (10 grains) with soda bicarbonate 1.2 gms. (20 grains) every hour until the patient is free from pain, and every four hours until convalescence is established, this is one of the most helpful drugs in our possession. Smaller doses, e. g., 0.6 gm. (10 grains) three times a day, may promote comfort in certain cases of chronic arthritis.

USES OF HYPNOTICS

Unquestionably other forms of etiological treatment are desirable in combating insomnia, yet it is only cant to say that hypnotics should only be used as a last resort. Insomnia soon becomes a habit, and may damage the brain just as much as a drug. Bromides, paraldehyde, chloral, and the barbital series have a place in clinical medicine. Of the barbital group, pheno-barbital (luminal) is most popular today, and has a wide field of usefulness in

daily practice wherever a mild sedative or hypnotic is indicated. In the commoner types of epilepsy as seen in general practice, pheno-barbital, 60 mgm. to 0.2 gm. (1 to 3 grains) at bedtime, reduces the frequency of the seizures and promotes improvement of the patient's general health. There is no good evidence to show that mental deterioration is hastened by its use. It has fewer of the objectionable features attendant upon the use of bromides. For the muscle rigidities and tremors of the Parkinsonian sequelae of encephalitis, a combination of pheno-barbital, 16 mgm. (¼ grain) with scopolamine 0.4 mgm. (1/150 grain) gives appreciable relief. Such obvious symptomatic treatment as the control of unproductive cough by codein, etc., needs no discussion.

THE HOPELESS CASE

Finally, we must recognize that some diseases are by their very nature inevitably fatal. The ghastly torments of pain in malignant disease should be abolished by full doses of morphin. A painful deathbed is distressing not only to the patient but also to his friends, and is a reproach to the physician in attendance. Moreover, there is a stage in every mortal disease where curative treatment is not only hopeless but unnecessary and cruel. In chronic uremia, where cure is out of the question, we should smooth the downward path by chloral hydrate, paraldehyde or morphin. In the last stages of heart failure, where no more effects can be obtained from digitalis, etc., and where dyspnea and insomnia make life unbearable, morphin reduces the suffering to a minimum for the remainder of life. So, too, in hopeless cases of tuberculosis complicated by painful lesions of the larynx, or by chronic ulcerative enteritis, the free use of opium is the most humane thing we can do.

I hope to have shown in this brief review of commonly used drugs, that many of them merit our confidence. I am optimistic about the future of drug therapy and feel quite certain that the labors of chemists and pharmacologists co-ordinated with those of the clinician, will add from year to year to our list of reliable measures for the relief of human suffering.

SYMPOSIUM ON THERAPEUTICS

DISCUSSION

Dr. William Donald, (Detroit): I desire very sincerely to speak for a few moments upon the last three of these papers. I did not hear the first, only a portion of the second, and the third was withdrawn.

I was exceedingly charmed with the address of Dr. Yoder. I looked around and saw the group of men and women filling the auditorium listening to this symposium upon therapeutics. I was reminded of two years ago when the local chairman of the committee organizing a clinic in Detroit for the assembled physicians and surgeons of the Pennsylvania Railroad, a large group of men from all over the Pennsylvania System, selected me to take up the medical side as against the surgical side in a certain symposium. At that time I took up the consideration of mental medicine about as Dr. Yoder did today, and I was interested in seeing that he held his audience, as I did, even better because he had a somewhat larger group. The subject was so interesting—not that it was so well put; don't misunderstand me—that when I concluded my address in 20 minutes I was asked by the chairman to continue for a little longer because the men apparently wanted just that. They wanted the knowledge of psychic medicine.

A few years ago I saw Dr. George Draper of New York, whom you all know so well. I was talking to him about his own private clinic, and he said to me just about as Dr. Yoder said today, "The trouble with the ordinary physician today is that he is so damned busy he can't get the story of the patient. I don't use very much medicine in my practice, but I do use an awful lot of time. When I call a patient into my office, the vast majority being immature adults of both sexes, I shut the door, give him or her a comfortable seat and say, 'Well, old fellow,' or 'Well, young lady, what is it all about?' I get the story by a little gentle questioning and suggestions. In a short time I have the whole story."

As Dr. Yoder said today, it is a case where they have been tortured by examinations of various kinds, chemical, physiological, and so forth, and nothing is found. The patient is like the woman in the Bible that Luke tells about. She comes to me with the story of continual troubles, irritations and mortifications, and there I have my case for a bit of psychic therapy.

I want to make the plea for more thorough examination of the patient, and let the patient tell his story, and a plea, as one of the other gentlemen said to you here, for time enough to get a diagnosis before commencing the therapeutics. I can commend it very highly, and I think it is so exceedingly valuable, but I don't want to say too much because plenty of other men want to talk.

There was the heavy artillery of my friend Marshall. I think his paper was wholly admirable, and I think it was generally good. There are some points which I would dispute with him, but he and I can take that up in private.

There is just one point I should like to make, and that is in regard to the question of vaccines. I think the point was made that selection should be made of "toxoid" rather than antitoxin. I am very much interested because two years ago at the meeting of the Tri-State Medical Society in Detroit, at which I presided, Dr. Fitzgerald of Toronto, in charge of the Royal Connaught Laboratories, brought up that same question and gave an address upon that advocating the use of toxin.

The Michigan State Board of Health antagonized him very keenly and very forcibly. As far as I can gather, the chief antagonism was not that toxoid was inferior to toxin-antitoxin, but that the State Board of Health has a large plant devoted to the production of toxin-antitoxin, and could not afford a change now.

Dr. C. C. Sturgis, (Ann Arbor): I have been interested in therapeutics, especially from the standpoint of what we should teach our medical students, for a number of years. Ever since I can remember, and two or three times each year, there has arisen a discussion in the medical faculty as to whether we teach our students enough therapeutics, and it is repeatedly charged that we do not.

I think one reason that arises is that we lay more emphasis perhaps on diagnosis than we do on actual therapy. I think that stand can be defended to a certain extent, because certainly it is quite impossible to treat a patient unless you are certain of the disease from which the patient is suffering.

Several years ago I came across a very excellent example of the relative importance of treatment and diagnosis. The patient had, in the course of two years, consulted 25 physicians and the diagnosis had not been made although the patient had been prescribed a great many different forms of therapy. The twenty-sixth physician made the diagnosis, which was correct, of myxedema, and it was a very simple matter to prescribe two grains of thyroid a day until the patient's health was completely restored. So we feel if we don't teach enough therapeutics we at least try to emphasize the importance of the diagnosis.

Even when you have a correct diagnosis and there is a known form of therapy for it, it has been my experience that your results may not be satisfactory in all cases, and when the results are not satisfactory it is usually due to one of three reasons: In the first place, the drug may not be potent if you are using a drug therapy; in the second place, you may not get the intelligent co-operation of the patient; in the third place, you may not administer the treatment properly.

Some years ago, I think there was a good deal of trouble with drugs not being potent. With the modern, sincere drug houses that we have these days, it is much less of a criticism, but, for example, the only way to assay dried thyroid gland at present is to estimate the amount of organic iodin which is present. A good many years ago the unscrupulous drug manufacturer would simply add some organic iodin compound to the thyroid and therefore would give a very high test, but his product would be entirely worthless.

Then, again. it is not always possible to assay drugs; there is no method of doing it. A very excellent example of that is liver extract. If you apply the well recognized ways of making liver extract and carry out each step very precisely, your end product may be potent or it may not be potent. We are working with an unknown substance. We don't know the slips that may happen when we take 2,000 pounds of liver and finally extract the active principle from it. The only way liver extract can be assayed is by trying it on a patient with pernicious anemia and determining the effect, especially on the immature red blood cells. But drug manufacturing houses do not always have clinical facilities to test each lot.

The second reason why therapy fails is because the patient does not co-operate intelligently with you. Some years ago when I was connected with another institution I sent out letters to all patients with myxedema asking them to return and get their percentage of supplies. I was very much amazed to find that over half of those patients had completely relapsed although they had been given the proper treatment and had been told it was necessary to take a certain amount of thyroid each day. I suppose that is the curious side of human nature. It is hard for a patient to take medicine if he feels well. If they omit a dose of thyroid one day and don't notice any change in the next day, or perhaps a week or ten days, they think they can discontinue it altogether, so a very large percentage of them had relapsed.

That is too bad, because here is a disease that we can control, and yet just through the patient's lack of intelligent co-operation we failed.

The same is true in the treatment of pernicious anemia. A few days ago we went over all the patients we had treated in the Simpson Memorial Institute, and we found that about 25 per cent of them relapsed because they stopped taking liver or liver extract.

I can sympathize with them. It is difficult to eat half a pound of liver a day. Some patients cannot do it indefinitely, but it is no hardship to take the liver extract. The reason they stopped is because they thought they were perhaps the one exception that could go without it.

As a result of this, we have tried to educate our patients with pernicious anemia. We have gotten out a little manual, similar to that given to diabetic patients, to educate the patients and tell them what the disease is and try to secure their co-operation better in that way. The same thing applies to diabetic patients, myxedema patients, and patients with any chronic disease which requires more or less constant management. We may fail just because the patient won't do what we tell him to do.

The third reason, I think, is important. We may fail to get therapeutic results because we omit some little detail of treatment. It may be only a very minor thing, but it may mean the difference between success and failure.

Dr. Marshall, for example, mentioned the use of tincture of digitalis. If you have a patient with chronic cardiac failure, and you make the diagnosis correctly, you know that digitalis is the drug to use. If you use the tincture, in many, many cases physicians assume that one drop is one minim when, as a matter of fact, it takes 30 to 60 drops of a tincture to make 15 minims and, as he said, it depends on the bore of the dropper, how you hold it and how rapidly you eject the fluid.

I want to say in closing that I am very much interested in teaching therapeutics. We are trying to introduce some new measures this year at Ann Arbor in teaching this particular subject, but I think after all a sound knowledge of therapeutics depends upon the scientific knowledge of the action of drugs combined with a long experience at the bedside of the patient. (Applause).

Dr. William Donald, (Detroit): I want to ask Dr. Sturgis if he will reply to this question as to whether, in his very large experience at the Simpson Memorial Institute, in pernicious anemia he finds that the patients revolt against use of the liver extract. We know they do at the feeding of liver.

Dr. C. C. Sturgis, (Ann Arbor): In reply to Dr. Donald's question, it certainly is very rare that we see a patient refusing to continue with liver extract. I am not sure that they ever do. They certainly do revolt against the liver. After all, it is a different thing trying to chew a half pound of meat than it is from simply dissolving a powder in a quarter of a glass of fluid and forcing it down.

We have noticed this although I am not entirely sure about it. We have an idea that a pa-

tient with pernicious anemia may have a normal blood but still develop gastro-intestinal disturbances, and really go through a relapse with the exception that the blood is kept at normal. I have seen a few cases of that, and they have had difficulty in taking the liver. It certainly is much easier for them to take the liver extract than to eat the liver itself.

Dr. Wm. Donald, (Detroit): Has there been any cheapening of the product"

Dr. C. C. Sturgis, (Ann Arbor): We are very enthusiastic because, as some of you undoubtedly know, we have discovered that desiccated hog's stomach has exactly the same effect as liver itself. It is a much more palatable preparation and certainly ought to be a great deal cheaper. Liver is quite expensive to begin with and the hog's stomach is, of course, a waste product. We found that a gram of the hog's stomach is more active than a gram of liver, so we feel quite encouraged that the hog's stomach preparation will be much less expensive.

Dr. William Donald, (Detroit): Did you say the pepsin was extracted before the stomach is used?

Dr. Sturgis: The only use they have for hog's stomach is to make pepsin and that takes only a small percentage of the stomachs available from the slaughter houses.

Dr. Conrad George, (Ann Arbor): I wish to present foods active in surgical procedures in two great lines of diseases. In my opinion, when these foods are used as such the surgical cases will be rsetricted to the exceptional cases.

I was called to Detroit on a case where the diagnosis was positively made and the treatment advised by the ablest men. It was a case of abscess of the left lower lobe of the lung in a boy 14 years of age. The exudate was a quart in 24 hours. The last man on the case before me proposed to operate, tunnel into that lung, but the mother wouldn't allow it. Under those conditions, I was called in. I looked over the case and the idea came to me that the surgery was for drainage, so I thought, "Why can't I do drainage?" So I resolved what to do. In regard to the food, the mother told me that the boy strongly objected to all vegetables and fruits. As I had to have the boy's co-operation in the matter, I promised that he should not be troubled with any vegetables or any fruits if he would obey me. The boy readily promised. I said, "Here is this pus down here and I want to drain it out through your mouth without coughing, because you can't get it out."

My medical treatment, as the older men know we had in all lung trouble, was chlorid of ammonium in five grain doses. That case was successfully cured.

It is in this stage that the food change comes in. Why it does remains yet to be explained, but here is the point: All foods are divided into two grand classes. One side is the alkaline and the other side is the acid, and you know from recent works that it is the little change between four and five points to six and seven points in the hydrogen-ion concentration that makes it either alkaline or acid, the electrolytic action of the body.

The vegetables and fruits belong to the alkaline class, except brussels sprouts and cabbage. These are acid. Meats, cereals and nuts are all acid.

My boy had the acid diet. That is what Sauerbruch called attention to in the suppurative cases. He could make no progress until he had put his patients on the entire acids of fruits. The chemists found out why. When you have suppurative disease, and especially abscess of the lung which is now a surgical disease, you strap your patient upside down the same as in the Trendlenburg position, and you put him on the acid food, giving him no vegetables or fruits.

Now about the chlorid of ammonium: They found that food alone would not change the electrolytic action; acid had to be with it. They either had to give the hydrochloric acid, the phosphoric acid or the chlorid of ammonium. You see we older fellows gave the chlorid of ammonium with very different ideas from the chemist or physiologist. Your food alone will not do it. You either have to have the hydrochloric acid, the phosphoric acid or the chlorid of ammonium. That treatment will eliminate the surgical work in abscess of the lung. That is my positive conviction.

We hear in modern times that the physician—I shouldn't say physician because he has no business to touch a thyroid gland; that is in surgical domain. I have been in the habit of treating thyroid glands for nearly 60 years, and I was an old man in the treatment of thyroid glands when Kocher made his first statement of the first 1,000 cases. In all my life not five cases have gone to the surgeon, and they didn't die of it either. (Laughter). The Rockefeller man discovered the poison that was actually produced in Basedow's disease. Both men produced their papers the same year.

The German calls it Basedow, the English and the Irish call it Graves' disease, but they all have the enlarged thyroid, the bulging eyes, and heart trouble, the shaking and the sweats. I think that is enough to make a Basedow's disease.

I am going to put this case on record so clearly and distinctly that it cannot be questioned as to its authenticity. The German discovered that nature produced the thyroxin from the amino acid tryptophan. He went a step further than Kendall. He found the source from which nature produced the thyroxin, the tryptophan. When you know the action of an amino acid, you can strike it with the food that is furnished. The main food supplies of tryptophan consist of all the meats, fats, milk, cheese, eggs and, strange to say, everything in wheat. These are the foods that are the carriers of tryptophan.

MENINGITIS DECREASE MAY BE DUE TO RESTRICTIONS

The steady increase in number of cases of cerebro-spinal meningitis which has been continuing for the last two years now shows definite signs of having been checked, probably as a result of the restrictions recently placed on persons entering this country from the Orient, public health statistics show. The number of cases reported from all over the United States for the week just ended was 99. This is one of the lowest figures reported for the entire year. Part of the decrease may be due to seasonal variation in the prevalence of the disease, but part of it is undoubtedly the result of the quarantine regulations for vessels from Oriental ports. These regulations were put into effect in an effort to check the rising epidemic of meningitis on the Pacific Coast which had been traced to immigrants from certain Oriental ports.

Under authority of an old, seldom-used law, President Hoover directed the U. S. Public Health Service to put into effect such restrictions as would prevent the further entry into the country of cases or carriers of meningitis.—Science Service.

SOME ALLIED MANIFESTATIONS of ALLERGY IN CHILDREN

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A relatively large proportion of individuals become sensitive to one or more foreign agents. It is estimated that 3 to 5 per cent of the population of the United States are sufferers from asthma and hay fever. Numerous others present symptoms of allergy in the skin, gastro intestinal tract and nervous system.

The chief predisposing cause of hypersensitiveness is undoubtedly heredity. Numerous investigators report positive allergic family histories in from 65 to 90 per cent of asthma and hay fever cases. The extreme possibility of these and other allergic phenomena appearing in the offspring of such individuals should be borne in mind. An individual may become sensitive to a great variety of alien agents, including foods, pollens, drugs, feathers, furs, smoke, dust, vapours, volatile oils, animal sera, bacteria, insect toxins and specific physical agents such as cold, heat, light and mechanical irritation.

It must be remembered that an individual once sensitized is always a possible sufferer, although the sensitizing agent and nature of the allergic response may vary from time to time, or entirely disappear.

Children are born specifically sensitive to foods. This accounts for the fact that the first time a mother adds cream of wheat, eggs or some other food to the child's diet, hives, eczema or asthma develop. Children as a rule are not born specifically sensitive to the epidermals and the inhalants, but acquire these sensitizations later. The more massive the degree of contact the more liable the sensitization. For this reason all children with a family history of asthma or hay fever, or with a personal history of hives, eczema or other allergic phenomena, should be protected from close contact with animals, birds, furs and feathers.

In infancy, foods are the chief sensitizing agents and eczema the most frequent allergic phenomenon. With increasing age new sensitizations, including inhalants and epidermals, are acquired and others lost. Asthma or hay fever may now manifest itself. Multiple sensitization is frequently found. At any age, however, any type of sensitization and allergic phenomenon can and does occur.

Grouping all ages together, asthma and hay fever are the most prevalent allergic manifestations. In children especially, however, other phenomena are equally prominent. It is the purpose of this paper to discuss these so-called allied manifestations of allergy.

A case presenting symptoms suspected of being allergic requires careful investigation. A family history of definite allergic phenomena such as asthma, hay fever or eczema or a similar personal history is important. Skin tests to determine the etiological agent to which the patient is sensitive must be carried out.

In our experience, the cutaneous test has been the most practical. Small abrasions are made with a needle or Pirquet borer, on the flexor surfaces of the forearm or front of the thighs. A small amount of tenth normal sodium-hydroxide is applied to each abrasion, followed by a small amount of dry protein extract. Reactions in children are frequently faint and difficult of interpretation. A slight erythema may indicate an extremely significant etiological agent. This is especially true of reactions to food. Delayed reactions are not uncommon, and for this reason readings should be made in 24 hours. As in many cases of asthma and hay fever, not all cases of eczema can be shown to be sensitive. In some, positive tests can be obtained, but these may not bear relationship to the etiological factors. In the face of negative tests in eczema one must feel that in some of these cases an obscure offending protein has not been tested for. In other cases the skin is undoubtedly refractory to the tests. Local areas may be found where positive tests can be obtained due to increased local hypersensitiveness. In one case of facial eczema in an infant in which all skin tests were negative, the history was suggestive of spinach as the causal agent. Tests on the arm were negative. A test for spinach on the forehead was definitely positive. If it were practical to carry out the tests on the susceptible skin areas, many of these cases could be solved.

Intradermal tests are valuable where

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negative results are obtained with the scratch method. They are, however, much more difficult to perform in young children and infants and are not entirely devoid of danger. Severe reactions resembling anaphylactic shock have occurred following an intradermal injection in very sensitive patients.

It is felt that group tests are very unreliable. In a group of proteins as small as whole wheat or whole milk, one frequently finds negative results for the whole substance, but a positive result for one of their contituents. For example lact-albumin may be positive and whole milk negative. Frequently one elicits a positive test for wheat proteose and a negative test for whole wheat. In general the larger the group used the greater the possibility of negative results.

The following case of eczema serves to illustrate some interesting points. Case E. D.—This was a five-year-old boy who had facial eczema during the entire first year of life, while having been fed on both breast and bottle. The family history was negative for asthma and hay fever. At the age of two and one-half years he developed a chronic eczema of the flexor surfaces of the elbows, wrists, knees and ankles, which persisted despite considerable local treatment. His skin tests showed positive reactions to cheese and tuna-fish and a faint reaction to cow's milk. Casein, lact albumin and lactoglobulin were negative. Cabbage, spinach, cocoanut and numerous furs and feathers gave slight reactions.

The milk was boiled and the other items interdicted without relief. Milk was then entirely removed from the diet with excellent result. The usual local treatment was instituted for local relief for the period of investigation. Six weeks later when the child was entirely free of symptoms, a sudden exacerbation occurred. An investigation of his diet showed that he had been given a small amount of chocolate. This had apparently enough milk in it to reproduce the eczema.

Milk sensitization in infants is a more difficult problem. The breast fed infant may be sensitized, not to its mother's milk, but to other proteins. Tests for other proteins may indicate the withdrawal of offending foods from the mother's diet. The infant can thus be shown to be sensitive to some foods ingested by the mother and not to the breast milk. Weaning is not justified unless tests for all the fractions of cow's milk are negative.

The bottle fed baby sensitive to cow's milk presents great difficulty. The infant may be sensitive—not to cow's milk but to bran, oats or other fodder ingested by the cow. If lact albumin is responsible, prolonged boiling of the milk may change this protein sufficiently so that it can be tolerated. If the casein fraction is responsible the milk can be peptonized, or various dried preparations can be used. Goats' milk may be effective. In many milk-sensitive cases no procedure can change the chemistry of the milk sufficiently. It is in these cases that we must rely upon external applications, alpine light and x-ray therapy for relief, until the infant desensitizes itself or until it can be placed on a milk free regime. The use of foreign protein injections may be of value. We have had occasional good results with injections of bacterial vaccines, such as typhoid and Coley's fluid, and with distilled water injections. The latter seems to be the least harmful and certainly obviates the danger of further sensitizing the patient. The distilled water probably hemolyses the tissue locally, producing an autogenous protein.

Other manifestations in the skin such as various types of urticaria, pruritis, antioneurotic-odema and occasional cases of purpura have been shown to be allergic. These conditions may occur as part of a general allergic reaction or alone. They may be caused by ingested food or by contact. Removal of the offending agent has cleared up these conditions when shown to be specifically sensitized.

Recurrent coryza and the so-called upper respiratory infections are frequently allergic in nature. The following child is typical of this group.

Case A. E.—Age five years. The father has hay fever. The child was perfectly well until three years of age. There was no personal history of asthma, hay fever or hives. Since three years of age he has suffered very frequently, especially from October to May, from repeated attacks of running nose, slight cough and occasional bronchitis. His tonsils and adenoids were removed one year ago without appreciably affecting his condition. Physical examination was entirely engative. Clinical and x-ray examination of the sinuses were negative. The tuberculin (Pirquet) test was also negative.

The child was then tested for eighty proteins of which wheat globulin and almonds were positive. Since being placed on a wheat free diet, during the past five

months this patient has had one nose cold without associated bronchitis.

Abdominal pain is a symptom dependent on many cases. Allergy as a possible etiological factor should be considered. The following case illustrates this condition.

Case J. L.—This was a girl aged eight years. A paternal uncle had had hay fever. During the past two and one-half years the child had been having pain in the left side of the abdomen lasting 2 to 3 hours. This pain was sharp, knife-like in character, and was not associated with fever or nausea. The attacks recurred every two to three months. The child had been treated for pyelitis on several occasions. The diagnosis of recurring appendicitis had also been made.

On examination no definite findings were made. The throat, heart, lungs, abdomen and urine were negative. A few isolated urticarial wheals were found on the back. On questioning the mother it was found that with each attack a few hives appeared. Sensitization tests were subsequently carried out. Tuna-fish was strongly positive. A positive tuna-fish reaction is an occurrence in many normal as well as sensitized individuals. In the latter its relationship to the disease or symptom under observation is frequently questionable. In this case, however, it was not difficult to demonstrate that tuna-fish was etiologically significant. When it was removed from the diet no further attacks occurred for six months. The mother at that time wished to prove the matter to her own satisfaction and fed the child a tuna-fish sandwich. In a few hours a typical attack occurred.

Others have reported cases of abdominal pain associated with hemorrhage from the bowels which were subsequently shown to be allergic. It is suggested that some cases of Henoch's Purpura may be explained on this basis.

Allergic reactions in the nervous system are relatively uncommon. These may be manifested by headache, typical migraine, parasthesias, or by definite convulsions. There may be other allergic phenomena in association, directing one's attention to the allergic nature of the condition. In the following case this association was definite.

D. R.—A girl of eight years had been complaining of attacks of headache, usually left-sided, since two years of age. The headaches occurred regularly every three to three and one-half weeks. They were characterized by nausea and vomiting for one day and an associated cough which lasted four to five days. There was usually slight fever and inconstant abdominal pain for a few days during each attack. Occasionally the cough seemed wheezy but there was no suspicion of asthma. There was no history of constipation. The child had never had hives, or eczema, nor was there a definite family history of allergy. The examination revealed that the adenoids and tonsils had been removed, the nose and throat were negative. There were numerous dry squeaky rales over the entire chest with definite prolongation of expiration. The neurological examination and fundus examination were negative. Skin tests were positive for cheese, lact-albumin, almond, tuna-fish, lamb, chicken feathers, horse dander, and hog hair. Milk, cheese and other foods were eliminated from the diet. The epidermals involved were also interdicted. The child has been on this regime for nine weeks, and has been free of symptoms during this time. It is yet too soon to state dogmatically that all the etiological factors have been discovered. That this case, however, is dependent on allergy seems incontrovertible.

Epilepsy is a term used to denote convulsions of unkown origin. In searching for an etiological factor in this large residue of unsolved cases, one should consider allergy as a possibility. The percentage of epileptics that can be shown to be allergic is undoubtedly very small. The following case has been under our care at the University Hospital at Ann Arbor.

Case G.—This was a three-year-old male child who had had convulsions for about two years. There was a paternal history of asthma. The attacks occurred a number of times a week and were typical epileptic-form in type. The entire examination including neurological and serological tests were negative. Sensitization tests showed a very strong reaction to cat hair. It was then discovered that there was a cat in close contact with the child. Removal of the cat from the child's environment resulted in cessation of the attacks.

It is not the intention of this paper to insist that all cases of so-called epilepsy can be solved on an allergic basis. This position would be untenable as one that would advocate that all cases of abdominal pain are allergic. Over-enthusiasm for any procedure in medicine is as decidedly against progress, as is under-enthusiasm.

In a given case, however, presenting obscure symptoms, suspicion of an allergic etiological factor is warranted, especially if there is a family history of allergy or a personal history of definite allergic phenomena.

A COMPARATIVE STUDY OF COMPLETE AND SUBTOTAL HYSTERECTOMY*

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During the past few years there has been an increasing tendency among surgeons—especially gynecologists—to advocate total hysterectomy in benign conditions. The end results seem to be better and the mortality, in the hands of those who are accustomed to the operation, is not any greater.

Owing to the ease with which the average supra-cervical hysterectomy can be done, the procedure has been routine with some surgeons who seldom consider the type of the operation to be selected by the individual study of the character of the tumor, the condition of the cervix, and the age of the patient. The subtotal operation is therefore done in those cases in which total removal of the cervix should be done.

The cervix, especially that of the parous woman, is often a source of a great deal of trouble and certainly has no function after the uterus has been removed. An infected, lacerated cervix keeps up a persistent leucorrheal discharge and because of the extension of the infection through the lymphatics in the broad and uterosacral ligaments, the parametric tissues become thickened, sensitive, and painful. This is often responsible for a certain amount of lumbosacral backache and bearing down sensation. In such cases there is also the possibility that the cervicitis may be a focus of infection in other parts of the body, as pointed out by Curtis, Sturmdorff, and others.

It is generally believed that the presence of carcinoma in the stump of the cervix does not warrant a panhysterectomy in itself. But Polak[1] has stated that there is a real danger, and collected 256 cases of carcinoma of the cervix after subtotal hysterectomy. He quotes Schollaender, Spencer, and Noble as having shown by routine serial section of the uteri in more than 900 total hysterectomies that carcinoma of the cervix actually coexists in more than 2% of all fibroid tumors of the uterus. During the past year we have seen three cases of carcinoma in the cervical stump. Two had been operated over five years previously; one only six months before.

Recently we performed a complete hysterectomy on a nullipara of 38 for multiple fibroids. The cervix seemed to be perfectly normal but the routine pathological examination showed an early squamous cell carcinoma.

The reasons commonly given for prefering supravaginal hysterectomy are:

1. Ease of operation.
2. It has a lower morbidity and mortality.
3. It does not shorten the vagina.
4. There is less danger of peritonitis, injury to the bladder and sigmoid.

(1) For the occasional operator the subtotal operation should be the operation of choice. However, the ease with which either operation is done is a purely technical matter and the ease of performance and the time consumed depends entirely on the experience of the surgeon. We have felt that the technique which we have used in the complete operation does not take very much time and is very little if any more difficult than the supravaginal.

(2) Statistics vary a great deal regarding the morbidity and mortality but it is generally stated that the mortality in the hands of experienced operators is not more than 2% in either operation. The mortality in a given operation is quite different in one hospital from that of another, as was disclosed by the late J. G. Clark who brought out the fact that the mortality rate in the supravaginal hysterectomy in a good clinic in expert hands, ran a trifle over 1%, while over the country as a whole—so far as statistics showed—it ran a trifle over 5%. In the complete operation the country over it probably ran 8%. The mortality from either operation should be limited to accidental causes: pulmonary embolism being responsible in about 50% of the deaths; peritonitis, and

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pneumonia being important other causes. Polak[1] states that the morbidity is lower in the complete operation while the mortality is 0.5% higher in the complete operation than the supra-cervical. He has a mortality of 2% for the total operation and 1.5% for the subtotal. In the Mayo clinic[2] in 1926, 229 cases of total abdominal hysterectomy were performed with three deaths or a mortality of 1.3%. During the same year 217 subtotal hysterectomies were performed with a mortality of 1.8%.

I have reviewed 628 hysterectomies performed at the Henry Ford hospital. These included all types of cases—cancer, inflammatory cases, and fibroids. Of this number complete hysterectomy was performed 476 times, and subtotal hysterectomy, 122 times. There were a total of 18 deaths, or a mortality of 2.9%. Fourteen deaths, or 2.9% were among the complete hysterectomies, and 4, or 3.2% were among the supravaginal.

During the past year we have done 199 hysterectomies with only one death or a mortality of 0.5%; of this number only 30 were the subtotal operation.

Our death rate until the past year was 4% for both the subtotal and the complete. This high mortality probably has several factors. Some radical panhysterectomies were performed in the 429 cases done previous to this year. We have discarded this operation.

The mortality among the supravaginal hysterectomies would undoubtedly be lower if we had been doing the operation more frequently and had been using our present methods of pre-operative and post-operative care. Besides it has often been done in the poor risks.

The average number of days in the hospital were the same for the two types of operations. The complications were slightly greater in the complete hysterectomy than in the incomplete. Complications occurred in 7% of the complete hysterectomies and 5% of the incomplete. Under complications I have included pneumonia, pulmonary embolism, thrombophlebitis, and wound infections.

During the past year there were only seven complications. One case of pulmonary embolism, two pneumonia, two wound infections, two thrombophlebitis—or a morbidity rate of 3.5%.

The highest post-operative temperature in the total operation in 81% of the cases was 101° or lower. In 79% of the cases this occurred the second day or before. The temperature had returned to normal in 10 days in 75% of the cases.

Eighty-six per cent of the cases of subtotal hysterectomy had a temperature below 101°. This occurred the second day or before in 81%; and in 83% of the cases the temperature had returned to normal in 10 days.

This would tend to indicate that the morbidity is slightly greater in the total operation.

(3) The vagina should not be materially shortened. I do not recall a single complaint of dyspareunia or of the vagina being too short in the 476 cases of complete hysterectomy performed. We think this depends on the type of operation performed.

It has been stated that by retaining the cervical stump we leave the key stone of the arch and thus maintain the conformity of the vaginal vault. Therefore we are less likely to get a prolapse of the vaginal wall. Pelvic floor repair is usually neglected when a hysterectomy is to be done—as a result, inversion of the vaginal wall is liable to happen in subtotal as well as total operations.

Repair of the pelvic floor is just as important with either operation, if there have been extensive lacerations of the perineal body.

(4) There does not seem to be any greater danger of peritonitis, or injury to the bladder or sigmoid. We have only had one case of peritonitis. Cystitis seems to have complicated the subtotal operation as frequently as the total. Peritonitis should not occur more frequently from cutting across the vault of the vagina instead of the stump of the cervix. When doing a subtotal operation we often cut through infected cervical glands, which certainly increase the possibility of peritonitis. It is often stated that in performing the complete operation we are cutting through a septic cavity. The vagina is more accessible and can be more easily sterilized than the cervix.

DISCUSSION

The end results and mortality in the two types of operations have seemed to us to justify—except in a very few cases—the total hysterectomy. We have not had the frequent complaints of leucorrhea, backache, and bearing down sensation so common after supravaginal hysterectomy.

During the past year our mortality has been unusually low—only one-half of 1%. As stated previously, one factor is due to discarding the radical panhysterectomy.

Another is probably due to the fact that all the operations except seven were performed by two of us, using exactly the same technic.

Anesthesia has probably been another factor. Most of the recent cases have had ethylene and ether, a few ethylene alone, and only about 20% have had ether alone. Spinal anesthesia has been used and found satisfactory for some cases. Choice of anesthesia for the individual case certainly lowers the morbidity and mortality rate.

The freer use of transfusions before and after operation, as well as the almost routine use of 5% glucose saline postoperatively has, it is believed, reduced the mortality rate.

The operation we use follows very closely that described by Baldwin[3] in 1917.

The pelvic cleanup is done while the patient is under the anesthetic. The vagina and cervix are thoroughly cleansed with green soap and water followed by alcohol. The abdomen is opened by the usual midline incision. After exploration of the abdomen the patient is placed in the Trendelenburg position and the intestines walled off with gauze. The uterus is seized by placing clamps on both broad ligaments close to the uterus at the horn so as to include the ovarian vessels and the uterine artery at that point. The uterus is pulled up in order to bring the cervix as close to the abdominal wall as possible. A clamp is placed on the infundibulopelvic ligament, just outside the ovary, if this is to be removed. This is divided and ligated.

The round ligaments are cut close to the uterus, and the broad ligaments are incised down to and exposing the uterine vessels. The peritoneum anteriorly and posteriorly is freed and dissected downward carrying with it in front the bladder and behind the sacro-uterine ligaments. The uterine vessels are then ligated. Four ligatures have controlled all hemorrhage. The uterus can usually be removed without applying any more hemostats or ligatures. There is no hemorrhage from the round ligaments.

The vagina is freed with the scissors and is opened just below the attachment of the cervix. A Kocher's hemostat grasps each lateral wall of the vagina after it has been incised and the whole uterus with a narrow cuff of vaginal wall is removed. A sponge is inserted into the vagina—this gives some support for 24 hours.

Closure is then done. The round ligaments are brought over and fixed to the lateral vaginal walls, and the ligature tied with the knot inside the vaginal canal.

A purse string suture is passed in and out in the submucosa around the vagina, not penetrating the mucus membrane, and under each round ligament, including the sacro-uterine ligament. The purse-string suture is tied and the edges of the vagina pushed in. This closes the vagina and the round, broad, and sacro-uterine ligaments are brought together in close apposition.

The peritoneum in the pelvis is brought together with a continuous suture commencing above the stump of the ovarian vessels on one side and continuing around to the corresponding point on the opposite side. The pelvic floor is left perfectly smooth without any raw areas.

DISCUSSION

Dr. Frank C. Witter (Detroit): It is a question of whether we do a total or a subtotal hysterectomy. I think that is a good deal of a personal question. It is obvious that the complete hysterectomy is more difficult than the supravaginal. The observations I have made in the last few years and the frequent occurrence of cancer in the retained stump have led me to discard the supra-vaginal type of hysterectomy entirely. I never do it any more regardless of the age of the patient. I do a total hysterectomy in almost every instance.

The speaker has already stated that the remaining stump is of no particular consequence. We used to be taught that there was some use for it. We used to be taught that the stump was almost necessary to act as a keystone of the arch to prevent the prolapse after these procedures. I have, like others perhaps, had prolapse of the stump left in. I have had no more cases of prolapse with the stump out than I did before. It all depends a great deal on the method that is used to anchor your round ligaments and the after care of the patient.

As to the dangers incident to the operation, if preliminary preparation of the vaginal and cervical tract is made before operation, cauterization of the cervix, and treatment of the visible tract with cleansing procedures, proper attention to the welfare of the patient before operation, administration of plenty of liquid, attention to the blood pressure and so forth, it has been my observation that the mortality rate in the total hysterectomy is almost, or practically, as low as it is in the subtotal.

For that reason I see no particular reason for leaving the cervix in, in view of the cases which I presented a little while ago where there were a number of recurrences in the stump. In one case where the stump had been practically obliterated—that is, all of the mucous lining of the cervix was obliterated—a cancer occurred in what little of the squamous epithelium was left. It is a question whether the mortality in the subtotal being less will offset the possibility or the mortality rate in the cases where we have a carcinoma recurring in the stump that remains behind.

Dr. Harry M. Nelson (Detroit): I appreciate Dr. Witter's discussion. We have never found it necessary to treat the vagina or the cervix, that is, previous to the operation. We have simply

made a cleanup at the time of the operation. We have never had peritonitis set in except in one case.

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FIBROMA OF THE NARES (NASAL POLYPS)*

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The nasal polyps have been a subject of controversy for many years. There is still considerable discussion as to whether the nasal polyp is a true neoplasm or not.

"Although there has been much debate over the relation of the nasal polyp to true neoplasm, here as elsewhere it is impossible to draw a sharp line between the products of chronic inflammation and tumor processes, so that there is some justification in the current usage by rhinologists of the term "Fibroma" for these common growths. Nevertheless, it is quite clear that in the nares more than in any other mucous membrane the polypoid outgrowths of chronic inflammation lack the histological features of an autonomous new growth. In fact, as Chiari claimed in 1887, many of them consist of nothing more than localized edematous areas of mucous membrane rendered protuberant by mechanical means, but without other changes. Once established, however, these masses are subject to various grades of hyperplasia of their elements which render them not only persistent, but often progressive, and in such cases there may be considerable change in the appearance and proportions of various cells. Since this change is seldom pronounced, the groups of nasal polyps must stand among the purest examples of pseudoneoplasms of inflammatory origin." (From Ewing's, "Neoplastic Diseases.")

Nasal polyps are probably always preceded by chronic rhinitis and Tissier traces an unbroken series of cases from simple chronic rhinitis through hyperplastic rhinitis to polypoid inflammatory outgrowths.

Zarniko describes three types of polyp:

A.—Fibroma edematodes simple.

B—Adeno fibroma edematodes, where new gland formation is prominent.

C—Fibroma edematodes cysticum. Most of the larger polyps owe their bulk to the formation of cysts which arise from distended alveoli lined with overgrowing cells. Their contents vary greatly from serous fluid to pure pus.

The polyps rarely become malignant. They may be explained as a result of chronic hyperplastic inflammation or the irritation of retained secretions and form a slowly progressing pseudoneoplasm. Similar changes may take place in the mucous membrane of the middle turbinate.

Opinions have varied during the years as to the relationship between nasal polyps and sinus infection. Many of the early authorities regarded the presence of nasal polyps as pathognomic of sinusitis. On the contrary other surgeons have regarded the sinus infection as merely an end result of the presence of polyps.

Necropsy findings by Zuckerkandl and Wertheim have established several cases of nasal polyp where the nasal sinuses were perfectly normal.

Clinically I have met several cases, although a small minority, which I could find no evidence of sinus infection and where the simple removal of the polyp resulted in a complete cure that has lasted over a period of years. These cases are of the single pedunculated variety.

Then there are those cases where we find multiple polyps without any demonstrable evidence of suppuration. These cases remain cured after operation followed by rather simple treatment.

As a result of this clinical evidence supported by the autopsy findings of such men as Zuckerland I feel we may safely conclude that nasal polyps are not absolute proof of the presence of a sinus infection. You may have nasal polyps without any pathology in the sinuses, although this occurs in the minority of cases. Clinically, however, we do usually find polyps associated with infection of the nasal sinuses. Frequently the X-ray corroborated by clinical findings demonstrates the presence of a pansinusitis.

Nasal polyps are seldom found in the frontal or sphenoid sinuses. When they are found in these cavities they are usually limited to the sinuses in which they originate, i. e. they do not protrude into the nose. On the contrary they are most frequently found in the ethmoid labyrinth, the antrum being the second most common site. Into

* Read before the Ophthalmological Club of Detroit.

both of these sinuses the polyp may often be traced from the nose.

How would a polyp under the middle turbinate near the opening of the anterior group of sinuses affect a normal sinus? Certainly in the presence of an acute cold it would materially affect drainage. Depending upon its position it could easily tend to assist the flow of secretions from an infected sinus into the ethmoid or antrum. If located advantageously it would tend to prolong any simple sinus infection so that in time a chronic sinus would result. This chronic irritating discharge would certainly not improve the condition of the polyp. On the contrary I think we might expect "bigger and better polyps."

I think we may affirm that the presence of polyps in the region of the middle turbinates may and frequently does result in a sinus infection. I think we have all seen cases of polyposis which have continued for years with no evidence of sinus infection suddenly become infected and result in a very severe suppuration of the nasal sinuses.

As to the problem of whether the sinus infection usually causes the polyposis we are still somewhat in the dark. There seems to be some factor not yet known which starts the polyp growing. The infected sinus may act as a stimulant to this growth even in those cases where the sinus is secondarily infected.

The nasal polyp occurs in only a small percentage of the cases of chronic sinus infection. We see many sinus cases that have been running for years, yet with no tendency to even polypoid changes in the membrane of the middle turbinate.

A factor that favors polyposis of the ethmoid labyrinth is that in this location the mucous membrane is much more delicate than in any other part of the nose. The stroma is much more loose so that edematous infiltrations of the mucous membrane more readily occur.

Then there is that group of cases where there is a hyperplastic inflammation of the lining of the maxillary antrum, which will show cloudy antri on X-ray plates. Suppuration may be absent, only the X-ray diagnosing polyps or hyperplastic inflammation in the sinus. The nose is free of polyps or any clinical suppuration. However, I have always refrained from opening such an antrum. I feel that the hyperplastic inflammation of the antral mucous membrane, even with the presence of polyps, is not menacing the health of the patient. Moreover, I always have a sneaking suspicion that the X-ray interpretation may be faulty. The X-ray has not been 100 per cent correct in my experience.

Such cases should be kept under observation and when suppuration develops, or when polyps push their way through the osteum into the nose, suitable treatment should be instituted.

In the large majority of cases of polyposis and in practically all the inveterate cases, the nasal sinuses are infected. There is a strong tendency to the development of a pansinusitis. However, the most frequent origin is in the ethmoid labyrinth, the second choice is the maxillary antrum.

While polyps may cause a sinus infection we can not say positively that an infected sinus can originate a polyp. We can be rather sure that a chronic sinus can irritate and render persistant a polyp once started. Hence, it is probably that we have here a vicious cycle the polyp often causing the infection of the sinus, which in turn irritates the polyp, causing it to take on a more persistant growth.

Polyposis may occur within the ethmoid cells. They are then quite limited in size, but when the overlying bone is removed, then these small polyps expand and soon push their way down into the nose.

I have noted, too, several cases where polyps originated within cells located in the body of the middle turbinate. These cells are ethmoid cells which have grown into the body of the middle turbinate.

I think we may sum up the status of the controversial polyp in these words:

A—The nasal polyp may be solitary and without sinus infection.

B—The nasal polyp may multiply and be without sinus infection.

C—The nasal polyp may become a mechanical factor in causing a sinus infection.

D—In the majority of cases the nasal polyp is associated with a chronic sinus infection; unless the chronic sinus infection be cured, the polyp will invariably return.

TREATMENT

All cases of nasal polyps should be thoroughly examined. Sinus infections are so common that a complete examination of the sinuses should be made. I transilluminate all cases. Where expense is not important I ray all cases. Where the cost of the X-ray looms larger I may operate the polyps and treat the patient locally for a short time and see if recovery is going to

be prompt. When the case becomes persistent the X-ray is made.

In all cases where the antrums are cloudy on transillumination the teeth must be rayed and while you are at it I insist upon all the teeth being X-rayed. Any dental pathology must be corrected. Quite a definite percentage of the infected antrums show dental caries.

The polyp operation is performed in my office under 10 per cent cocain and adrenalin. I like the preliminary use of alonal or some other barbituric acid preparation. It definitely decreases the toxicity of the cocaine and is a sedative. While I perform some operations in the hospital the patients taken care of in my office seem to mind the operation less.

The single pedunculated polyp should always be removed although I am aware that some oppose this view. It is a constant menace to the health of the sinuses and in the natural course of events will grow to a size to obstruct breathing. I have frequently seen cases where operation was advised when free of symptoms, come in months or years later with well developed sinus infection. For this reason I always advise operation.

I practice exulsion of the polyp. The main body should be grasped with a ring type forcep and given a twisting jerk or you may slip a snare over the main body of the polyp, tighten the wire till there is no danger of the polyp slipping through it and then evulse it with a quick jerk. Often small particles of the underlying bone will come out with the polyp. This is desirable. One must avoid accidentally getting the wire over the end of the middle turbinate and then jerking off the entire turbinate. This might result fatally in the presence of suppuration. However, this accident would be very unlikely to occur in the hands of an experienced operator. The flat polyp must be removed by one of the numerous punch forceps. The underlying mucous membrane must be removed down to the bone; this also applies to the remanents of the large polyp which doesn't always completely evulse. I frequently curret the underlying bone.

The after care is very important. There should be no high packing placed in the nose. I do place a small piece of cotton in structed to remove when he reaches home. the vestibule which the patient is in-

I never allow the patient to go home two or three times a week when the mucous membrane is cleared of secretions and painted with 5 per cent silver nitrate. The applicator is often allowed to remain in contact with the under side of the middle turbinate for two or three minutes. This treatment will result in a cure of all the simple cases. However, I instruct all patients that they must return every 1-3 months for inspection. Here I find the Holme's Nasopharyngoscope is invaluable. With it I can often see mucous or pus coming down from under the posterior end of the middle turbinate or I may see small polyps reforming. In many of these cases anterior rhinoscopy will be negative. Such a case is not cured. Further treatment or operation is indicated.

In all the persistent cases of polyposis I have found the ethmoid or antrum or both infected. To be sure the frontal or sphenoid are often involved as well. Yet I feel that we have here a secondary infection, the ethmoid or antrum being the key stone in this vicious cycle.

In all such cases unless the underlying sinus infection is eradicated polyps will continue to reform. However, I am much opposed to an immediate radical operation on the diseased area. A complete evicération of the middle turbinate and the ethmoid labyrinth will be followed by a permanent dryness and a sensation of stuffiness.

My own procedure is to completely remove all visable polyps. This may require several sittings in inveterate cases, with a lapse of 2-4 weeks between sittings. Silver nitrate or argyrol tampons are used between operative attacks to reduce the inflammation and discharge. The tampons must be placed at the spot of origin of the polyps. When the polyps have been removed the probe is used to follow up the flow of pus and explore the sinuses. The probe may show diseased ethmoid cells. The Hajek hook is then inserted into the opening noted by the probe and the osteum enlarged. The X-ray will be helpful in indicating how extensively the ethmoid is diseased. However, I depend more upon the amount of discharge and the use of the probe and hook. I feel it is safer to assume that the disease is limited to the cells around the opening in which pus is found. In this way we avoid infecting deeper cells not yet involved.

Where we see pus coming from further back in the ethmoid the opening must be more extensive. The fundamental principal of all sinus surgery is free continuous drainage.

As a rule I do not remove the membrane lining the ethmoid at the first operation.

Frequently a membrane that looks badly diseased will clear up under drainage and simple treatment. Later when it is found that the membrane does not clear up it may need to be thoroughly removed. A suitable grasping forcep is used. Flat hypertrophies are cut and torn off with the hook or currett.

At first every effort is made to leave the middle turbinate untouched if it is of normal size, as it serves as a guide in all future operating as well as conserving its normal function.

However, if the case proves obstinate the anterior end of the middle turbinate must be removed. At times one must exenterate the ethmoid labyrinth quite extensively.

Severe cases require partial resection of the bulla ethmoidalis and the uncinate process as well.

Small wonder that some surgeons advocate the complete exenteration of the ethmoid and removal of the middle turbinate under general anesthesia. Nevertheless, I am opposed to such radical operating. I greatly prefer the slower process of proceeding step by step, eradicating only what we see definitely diseased, followed by treatment between operative attacks. In this way many cases that would seem at first to require radical operating, clear up with much less surgery, with a more normal appearing and functioning nose. To be sure the step-at-a-time method may extend over many months in the inveterate cases. Nevertheless, the ultimate result is so much more satisfactory in freedom from dryness and sense of stuffiness that I feel we are justified in the slower method.

I fear the antrum is often overlooked in these obstinate cases. If cloudy or transillumination or X-ray it should be irrigated to see if it contains pus. It is better yet to explore it with the antroscope. A small opening can be made through the canine fossa or it may be explored through an opening made under the inferior turbinate as described by Doctors Wilson and Hughes a few months ago. If shown to contain pus or polyps adequate treatment must be instituted. First I usually try simple drainage through a fairly large opening in the inferior meatus using irrigation or suction followed by injection of silver nitrate 1-2 per cent. If a month or two of treatments show no improvement a radical antrum operation is done.

It is important to block off the different sinuses to be certain from just which sinus the discharge is coming. I fear this is an old method of diagnosis that we are prone to overlook. In the pansinusitis cases it is especially important to do this as all the sinuses will be cloudy on the plate. If after washing out the antrum pus reappears in the nose in short order then we know that other sinuses are still active. By placing tampons at the opening of the sphenoid and frontal each in turn can be blocked off and in this way we find which of the sinuses are still active.

In all persistent cases of polyposis some sinus is infected and the sinus infection must be cured before we may hope to stop the polyp reforming. Time forbids going further into the subject of sinus surgery.

I have no experience with any of the forms of cautery of these cases. Hajek strongly condemns their use. I have never used radium. Studying reports of its use in polyps has not favorably impressed me, but I am anxious to know if any of you have used it. I think all of these cases should be examined from the viewpoint of allergy.

However, in my hands silver nitrate and the silver nucleinate tampons properly placed have been invaluable in clearing up these conditions.

SERUM TREATMENT IN TYPE I LOBAR PNEUMONIA

The evidence based on experimental studies, made by Rufus Cole, New York, that immune horse serum should be useful in the treatment of pneumonia due to pneumococcus type I, is supported by the clinical experience of the Hospital of the Rockefeller Institute in which, among 431 cases, only forty-four died. A review of the fatal cases indicates that if serum therapy was not effective in this group of cases no other form of specific treatment would likely be of much greater value. It is possible that more prompt diagnosis of the type of infecting organism and more regular and persistent administration of serum might have saved a few more patients. The present method of treatment with large doses of serum is not ideal. Various methods have been used to concentrate the immune substances contained in the serum. With concentrated serums, accurate methods of standardization are demanded. The methods now being used present certain difficulties, and it is seriously questioned whether by these methods a picture of the actual effectiveness of the product can be obtained. It is doubtful whether the small doses of concentrated serum which have been recommended can have any effect on the mortality from pneumonia. Unless very large doses of concentrated serum are employed, or unless some more accurate method of standardization is adopted, it is better to continue to treat cases of type I pneumonia with good, whole serum in large doses.—Journal A. M. A.

NEW STRATEGY IN THE CAMPAIGN AGAINST CONSUMPTION*

EDWIN E. SLOSSON, Ph. D.**
Late Director, Science Service, Washington

The turning point in the Great War was when the allied forces fighting the Germans joined in a single co-ordinated plan of campaign under unified control by the appointment of General Foch, as commander-in-chief of all the armies. The turning point in a greater war may likewise date from the day when the allied forces fighting the germ of tuberculosis joined in a single co-ordinated plan of campaign under unified control in charge of the Research Committee of the National Tuberculosis Association. This means a revolution of the major strategy in the conquest of disease, the adoption of the policy of siege tactics and trench warfare on a large scale instead of relying upon accidental advances and the casual attacks of individual investigators as in former times. Progress under the new plan may be slow but is sure, for each foot of ground gained in advances into unknown territory is securely held. A small army of experts has volunteered service in this field, chemists, bacteriologists, druggists, physiologists and physicians, more than a hundred of them, working in various parts of the country on the common problem.

The first objective of the new campaign is the discovery of the cause of the disease. After that is attained the way will be opened for the discovery of a cure for the disease. It has long been known that tuberculosis is due to certain plant-like parasites, bacilli, or in plain English "little rods," which find a lodgment in the cells in the lungs or other parts of the body and there form nests or colonies, in the shape of little nodules, the characteristic "tubercles." But we have got to know more about these bacilli before we can fight them effectively. How does it happen that these little creatures have the power to pull down a strong, young man? Why is it that a little local colony of these microscopic invaders can set up fevers and sweats in the entire frame and cause him to weaken and waste away? Do they poison him or what? Do the dead germs or the live ones do the damage? What are they made of? What do they give off while living? What do they leave when dead?

Obviously the first step in the investigation was to set the chemists to analyzing the tuburcular bugs. But the chemists demanded that they be supplied with the material to be analyzed by the pound, even by the hundred pounds in the long run. So two of the leading manufacturers of medicines undertook to cultivate the creatures that they proposed to destroy. Fortunately it was found that the tuberculosis bacillus, unlike many microbes, could be made to grow outside of animals and without any animal matter. They would thrive in glass flasks filled with nutrients of known composition, made up of pure chemicals. Consequently any new substances discovered in the dead and dried germs, or in the solutions where they had lived, must be such as have been formed by the creatures themselves and such as they release inside the body. In this mass of crude material then we may expect to find the products that exert the deleterious effect upon the human system.

Although the chemical work may be said barely to have begun, yet it has already resulted in startling discoveries. Two, in especial, are altogether unexpected and without precedent. There has been found, among the toxic constituents of the tubercular germs two that belong to two of our most familiar food families; an unknown fat that may form tubercles and an unknown sugar that may be fatal under certain circumstances. All the fats and sugars known hitherto are nutritious and innocuous. Not a disreputable member among the scores of fats and sugars found in nature or the hundreds that can be formed by the chemist.

But the newly found fat when injected into an animal will form the same sort of tubercles as are produced by the living germs. This fat is, of course, devoid of life; in fact has been freed from all other substances in the complicated chemical process of purification. Probably when its structure has been worked out it will be found possible to make it artificially from

* Contributed by Science Service.

**Dr. Edwin E. Slosson, Director of Science Service, died at his home, Washington, D. C., October 15th. He had been suffering from cardiac trouble for some time, and an acute attack about a week previously hastened his end. Dr. Slosson was born in Albany, Kansas, in 1865; received the Ph. D. degree in 1902 from the University of Chicago. The most successful of Dr. Slosson's books has been "Creative Chemistry", which for a decade has held its own among the best sellers. Among his other works are "Easy Lessons in Einstein", "Science Remaking the World", "Keeping Up With Science", "Chats in Science", "Sermons of a Chemist", "Great American Universities", "Plots and Personalities", "The Spirit of American Education", and "Six Major Prophets". During his eight years as director of Science Service he trained a group of young writers in the ways of popular presentation of science, and these will now carry on his work. For the past two years, as our readers know, we have made use of this service.

mineral matter in the laboratory. It contains the same elements as the common fats and it seems similar in constitution to the ordinary fatty acids of foods, such for instance as stearic acid. Yet it is capable of producing all by itself the same little nodules that are characteristic of the disease and have hitherto been found only in the colonies of the living bacilli. The first effect of the injection of this fatty fraction is to stimulate the growth of the particular kind of blood cells that the tubercular bug lives in, and the abnormal multiplication of these cells upsets the balance of the body cells.

The other discovery is still more unexpected. This is a strange sugar which, when injected into the blood of a tuberculous animal, will kill it quickly. Yet it is harmless to an uninfected animal. Somehow the sugar knows. It can make a diagnosis like a doctor—or better than some. Yet the sugar is a white, harmless looking powder, sort of sweetish like the others, made of the same elements, so it is peculiar that it should prove to have poisonous properties. It seems to act directly on the adrenal glands, causing sweats and fevers, for the secretion of the adrenals controls the temperature reaction of the body. We may surmise in advance of evidence that the familiar symptoms of the disease and its final fatal effects may be due, in part at least, to the constant leaking into the blood of this pernicious product from the tubercular germs as they die and decompose inside the cells of the afflicted individual and so slowly poisons him.

This is not the only case of sugar found in disease germs, for recently some unknown sugars have been extracted from pneumonia material.

The healthy person can for a time withstand the pernicious influences emanating from the infected area, but as these increase and his resistance weakens, he fails to react as at first and the rising and falling of his temperature becomes more extreme. We may hope that eventually the chemists will find something that will break down the waste poison of the tubercle bacilli into glucose or other harmless substances.

It is already obvious that the new tactics for the investigation of disease, while at first focussed upon the tuberculosis problem, will throw light upon other diseases and in fact upon the fundamental processes of human physiology. For the three grand classes of components found in these laboratory-raised bacteria, that is, fats, sugars and proteins, are the same as constitute our bodies and our food. But how these three kinds of compounds combine in the body is still a mystery. The chemist has isolated and determined the composition and construction of all the common fats, sugars and proteins. Some of them he even can make synthetically in his laboratory. He can figure out closely just how much of these various ingredients of food are needed for a particular day's work. He can tell, for instance, just how many more foot-pounds a man can lift by adding an ounce of glucose to his ration. The chemist can trace the molecules of glucose through the blood stream till it gets to the muscle where it is needed. But there he loses track of it. He is still much in the dark as to how the protein in the muscle fiber seizes on to the sugar and gets energy out of it and what part is played by the phosphorized fatty acids present. If he can find out how these three substances are hitched up in normal life, he would most likely be able to find out how they get hitched up wrongly in disease and finally how to get correct the blunder.

BLAMES OVERWORKED EMOTIONS FOR DISEASE

Nobody really overworks as far as mind and body go, but we live at such a high emotional tension that we become tired and jaded and require violent stimulation to keep us going. Also, this high emotional tension is the cause of a number of diseases, Dr. Charles P. Emerson of the Indiana University School of Medicine said at a recent meeting of the New York Academy of Medicine.

"Under certain conditions a strong emotion can inflict a physical injury just as truly as can a knife," Dr. Emerson said. "The injurious effect of a long maintained depressing emotion has never, we feel, been appreciated. We endure well the effects of strong emotions, if only their duration is brief or their qualities varied. That the depressing, contractile, paralyzing emotions called fear, apprehension, worry, etc., weigh heavily in the balance against a patient during the course of an infection has long been suspected but since these phenomena cannot be weighed, measured nor rendered objective, we cannot at this point consider them seriously. The effect of these emotions on the glucose tolerance of a previously well standardized case of diabetes mellitus can, on the other hand, be measured in terms of grams of sugar in the urine, in milligrams of glucose in the blood stream, and of units of insulin necessary to restore the sugar-free condition."

Dr. Emerson urged physicians to consider more the emotional, psychological aspects of disease than has been done in the past. This new phase is just as much a part of regular medicine as are the physical and biochemical aspects with which physicins have long since become familiar.—Science Service.

HEAD GANGLIA AND HEAD PAIN—MODERN METHODS OF TREATMENT

C. F. McCLINTIC, M. D.
DETROIT, MICHIGAN

For several years I have been teaching my class in neuro-physiology at the Detroit College of Medicine and Surgery that pain comes into consciousness in the thalamus and that the conduction fibers for painful impulses are non-medullated or of the sympathetic type.

This idea I find is rather difficult to fix in the mind of the student who is not handicapped by any other notions concerning pain, and when it comes to getting the idea across to the members of the Medical Profession who have a rather definite, if erroneous idea concerning pain sensations and their conductions to the field of consciousness, our task becomes almost hopeless.

That pain comes to consciousness in the thalamus, which is that portion of the cerebrum surrounding the third ventricle, is conclusively proven by both clinical and pathological data. For this evidence I need only refer you to the scholarly work and observations of Holmes and Head of England, and Tilney of this country.

That the conduction paths for pain are over non-medullated or sympathetic fibers is confirmed by the work of such neurological students as Ramon Cajal, DeJerne, Ranson, and there are scores of clinical cases recorded in the literature which corroborate their conclusions.

Pain fibers in the fifth nerve have been demonstrated by Fay and Heuer. Frazier has noted pain over the trigeminal area in ligation of the superior thyroid artery. Reid, after removal of the superior cervical sympathetic in Angina Pectoris, observed an absence of epicritic sense, diminished protopathic, superficial pain reduced, and a marked lowering of the threshold of pressure pain over areas of distribution of the V nerve. There was disturbance of temperature sense and sense of position.

Frazier Experiment: Frazier stimulated the carotid artery before operation; there was a sense of pressure on the gums, sensation like electric shock on the side of the neck and pain in the upper jaw and forehead. After operation there were no painful sensations. Stimulation of the cervical carotid arterial plexus caused pain in the lower jaw. Stimulation of the superior sympathetic ganglion caused pain in the left eye, and stimulation of the superior thyroid artery affected the upper neck and face.

NOTE—Dr. C. F. McClintic is a frequent contributor to the Journal M. S. M. S. Besides being connected with the neurological service of the Receiving Hospital, Detroit, he is Professor and head of the department of anatomy of the Detroit College of Medicine and Surgery. Read before the Ophthalmological and Oto-larynological Section of the M. S. M. S.

Bryan, Sluder and Green have pointed out that eye pain is transmitted via the spheno-palatine ganglion and not over the ophthalmic division of the V nerve.

Toney of St. Louis, relieved toothache in the lower jaw, due to an infected tooth, by cocainizing the spheno-palatine ganglion.

By ligation of the carotid artery Forio of Leipsig gave relief when an aneurysm of the carotid artery produced glossopharyngeal neuralgia by irritation of the carotid plexus and chorda tympani and petrosal ganglia.

Ryan has controlled pain of Herpes Zoster of the ophthalmic division of the V nerve by injection of the spheno-palatine ganglion. The spheno-palatine ganglion is the sympathetic ganglion of the maxillary division of the V nerve; the ciliary ganglion of the ophthalmic; and the otic of the mandibular.

By cocainizing the ophthalmic nerve in Herpes Zoster, Ryan has relieved pain in the area of distribution of the ophthalmic division of the V nerve, but not in the eye. By applying it to the spheno-palatine ganglion he was able to relieve the eye pain.

For our present discussion the part played by the sympathetic ganglia in the pain mechanism come up for consideration. The sympathetic ganglia are regarded as motor relays in the sympathetic system, but they also serve as points for convergence and divergence of sensory sympathetic fibers, among which are the pain fibers. In fact, we might question the existence of any other sort of sensory fiber in the sympathetic system. Since the ganglia serve as bottle-necks for the pain fibers, they also serve as convenient points of attack in attempts to relieve pain or interrupt its transmission. The only difficulty encountered is to know just where and how the pain fibers which pass through the various ganglia are distributed.

To take time to go into detail concerning

the distribution of the fibers which pass through the head-ganglia would exceed the limits of this paper. So in order to indicate briefly their distribution, let me summarize very briefly as follows:

1. By head ganglia we mean the following:

1. Superior cervical sympathetic.
2. Spheno-palatine.
3. Otic.
4. Ciliary.
5. Geniculate.
6. Nodosum.
7. Jugular.

We have omitted the Gasserian ganglion because it is essentially a dorsal root ganglion, and the pain fibers distributed in the trigeminal nerve probably enter the nerve by way of other ganglia mentioned, some of which lie in close proximity to and are connected with the trunks of the trigeminal.

II. The sensory fibers passing through the ganglia above mentioned are distributed to or come from various areas of the head, as follows:

The superior cervical sympathetic ganglia distributes fibers by way of the carotid arteries and carotid plexus to the carotid nerves.

1. Carotid nerve
   - Petrosal ganglion of glosso-pharyngeal nerve.
   - Hypoglossal nerve.
   - Pharynx
     - Pharyngeal plexus consisting of IX and X nerves.
     - External pharyngeal nerve.

2. Internal carotid nerve
   - Gasserian ganglion.
   - Greater superior petrosal nerve.
   - Cavernous plexus.
   - Ophthalmic division of V nerve.

BRANCHES OF THE SPHENO-PALATINE GANGLION

1. Ascending or orbital
   - Iining of orbit.
   - Lining of ethmoid cells.
   - Lining of sphenoid cells.

2. Internal or nasal (somatic sensory)
   - Lateral posterior superior branch
     - via spheno-palatine foramen — superior and middle turbinate posterior ethmoidcells.
   - Medial posterior superior branch
     - via spheno-palatine foramen—back part of nasal septum—naso-palatine grooves Vomer to anterior palatine foramen (Cloquet's Ganglion) Anterior part of hard palate.

3. Descending branch
   - Anterior Palatine
     - Somatic sensory from maxillary nerve—pterygopalatine canal, palate, gums of maxilla.
     - Posterior portion inferior turbinate and part of inferior and middle meatus.
   - Posterior or small palatine—Soft palate uvula, tonsil (sensory from glosso palatine).
   - Middle or external palatine—tonsil and soft palatine.

4. Posterior: Pharyngeal—upper pharynx, eustachian tube, choanae, lining of the sphenoidal sinus, posterior somatic sensory—maxillary nerve.

BRANCHES OF THE OTIC GANGLION

Receives branches from (motor) glosso palatine.
Receives sensory and motor from glosso pharyngeal.
Receives branches from vidian.
Receives branches from small superior petrosal.
Receives branches from plexus on middle meningeal artery.
Gives branches to sub-maxillary ganglion.
Gives branches to auriculo temporal nerve.
Gives branches to recurrent branch of the mandibular nerve.
Somatic motor to tensor tympanic muscle.
Somatic motor to tensor veli palatini.
Somatic sensory to all these muscles.
(Sympathetic to vessels.)

BRANCHES OF SUB-MAXILLARY GANGLION

Receives somatic sensory from lingual.
Receives sympathetic motor via lingual.
Receives sympathetic motor, glosso palatine via chorda tympani.
Receives sympathetic motor, facial artery.
Branches to sub-maxillary gland and Wharton's duct.
Branches to lingual nerve and sub-lingual gland.
Branches to mucous membrane of the floor of the mouth.

In the study of the connections you will note that these fibers reach the brain stem and cerebrum by two main routes. (1) By way of the superior cervical sympathetic, and (2) by way of the cranial nerves. A very important point to be remembered about the distribution over the cervical sympathetic is that the fibers leave the ganglion for the head regions by traversing the carotid artery.

With this resume of the distribution of the sympathetic fibers to the head region it becomes immediately apparent that by destroying these ganglia that certain head areas are deprived of pain conduction paths, and in addition to destroying the ganglia the paths may be interrupted by cutting the sympathetic fibers from certain parts.

The methods that have been employed consist of avulsion or excision of the ganglia, ramisectomy or sympathetic neurectomy, alcoholic injection of the ganglia and peri-arteriorraphy. Some very pleasing and remarkable results have been obtained by the practice of these measures. They have not only been done for the relief of pain, but also for the relief of glaucoma, exophthalmos, angina pectoris, otosclerosis, facial palsies, etc.

Leriche says that "Neurotomies of the sympathetic are sensory neurotomies and not motor. That section of the sympathetic chain or its branches has the same effect as ablation of its ganglia. That ganglia, being centers of conduction, should not be

sacrificed, if possible, and that every sympathetic neurectomy is followed by the formation of a cicatracial neuroma."

Dr. Seymour and I were the first to report relief in a case of Raynaud's disease, involving the upper extremity, by doing a Ramisectomy. Our results were identical with those obtained in the same patient by doing a Ganglionectomy. We accomplished this result in spite of the fact that a number of neuro-surgeons, including Adson of the Mayo clinic, have claimed that a Ramisectomy in the neck does not produce the same results as a Ramisectomy in the lumbar region.

Personally, I have never been very enthusiastic about the operation of Peri-arteriorraphy and Ganglionectomy. While some of them are simple, yet they are fraught with a great deal of trauma and sometimes they are accompanied by severe shock. Since alcoholic injection of the ganglia has been extensively practiced and it has been demonstrated that nerve destruction, and particularly in non-medullated elements, accompany alcoholic injection, we decided to try alcoholic injection of the peri-arterial sheath as a substitute for the mutilation of the blood vessel by Peri-arteriorraphy and also as a substitute for Ramisectomy and Ganglionectomy. So we have employed this method in a small series of six cases and after a period of five months we find that the results obtained are identical with those obtained by other methods. Therefore, we propose the alcoholic injection of the sheath of the internal carotid artery as worthy of trial in the treatment of certain types of head pain. In the use of this method a differential diagnosis as to the source and the distribution of pain is going to prove more essential than the methods practiced at present.

The technic is simple. The carotid sheath is opened, the carotids are exposed and 1-2 c.c. of 95 per cent c.p. ethyl alcohol is injected into the sheath until a ring of dehydrated tissue surrounds the artery. This does not damage the artery, yet it permanently interrupts the sympathetic fibers which transmit painful impulses. It may also be used where vaso-motor changes are desired, and in certain muscle palsies. This is the idea which I desire to present for your consideration.

DISCUSSION

Dr. A. S. Crawford (Detroit): Dr. McClintic suggested yesterday that I say a word. I hesitated at first because I haven't had any particular experience in just this phase of the work that he is proposing, but I am interested, of course, in the treatment of head pains, particularly connected with the tri-facial, giving alcoholic injections for facial neuralgia, and we have become interested recently in attempts to relieve migrane. Dr. Maloney and I, in our hospital, have been working together on this and the results are not ready yet to be published, but we have found some very interesting things in connection with some of the other cranial nerves and their relationship to migrane and some have been definitely relieved by alcoholic injections, so we are interested in this general subject.

I might say a word in a general way that you all remember that just a few years ago this whole subject was more or less in the air and our treatment was more or less empirical, but during the last few years there has been fresh stimulus given by the revived work of Jonescos, and the sympathetectomy for angina pectoris and more recently for other pain conditions, and we are just in the beginning, I believe, of a new era of more scientific treatment and such work as Dr. McClintic has just suggested is very helpful and useful because it is going to help to lead the way to a more accurate knowledge of the anatomy and physiology.

Of course, we all realize that the physiologists are more or less limited in their experimental work, so it is only going to be by trial and error that we will finally work out the true anatomy of the sympathetic nervous system and I think we who are interested in this sort of work and are trying to do the experimental work should be very careful that we have experiments controlled and done carefully and not simply hit and miss and arbitrarily as so often is done, because you realize that the persons with angina pectoris, for instance, if you review the work done in the sympathetic nervous system, you realize how much each man feels he has something and if he reviews the work of ten years, you see how confusing it is—one man did one thing and got results and another man did the same thing and didn't get results and the same thing applies to this.

I can't quite see how the mechanism is there. It may be true, but I don't see how the sympathetic will act in that way to act as a sort of brake and if you take it off, it gets across to a bilateral relevation. We have to be careful in these observations that a large number are done and they are carefully controlled.

For example, one of the neuro-surgeons had an experience in removing cervical ganglia and he stated it to the other neuro-surgeons at the next meeting and each one jumped on that fellow and said, "We have tried it and it is a darned lie. It is not true."

But I think that it is such work as Dr. McClintic is proposing that is fundamental and important and I think all of us should have closer co-operation between the clinical men and those attempting to carry on the work. They see the work and are trying out the various types of blocking, and some time we will be able to work out the true state of these various intricate nervous systems tied up with the sympathetic nervous systems.

Dr. Emil Amberg (Detroit): In listening to the paper it occurred to me that there is one word there we should not overlook and that is in certain types of patient, which, of course, suggests to us certain types of pain in the head. We can have nothing to do with this kind of surgery

and remain in the dominion of the oto-laryngologist.

The doctor spoke about the cocainizing of the ganglion. I should like to ask some questions. How does it come that we can relieve toothache by inhalation of mustard oil? It can be done in certain instances. I have tried it myself on some people, but I hesitate to do it now after the war, I have heard so much of the effects of mustard oil on the respiratory tract.

He spoke about the emotional effects of pain. I know someone who has a pain in the dorsal surface of the foot or both feet if he thinks of some terrible accident or somebody hurt or cut. It is purely psychological and emotional. I should like to ask the doctor to explain that.

Concerning migrane, it was very interesting to use the Muck tests in all phases of migrane. If I had known the title of the doctor's paper, I should have looked up the Muck test, which is very essential in diagnosing migrane. If I remember correctly, it is that if you use epinephrin in the nose and branch the surface and then take a probe and slightly touch the surface by carrying the blunt probe over it, you have a white streak for certain number of seconds or minutes, and this does not occur under other conditions. It is very essential in differential diagnosis.

I should certainly like to compliment Dr. McClintic on everything here said. It may not come out the way he thinks, but it opens up a newer era in medicine and again shows that there are means to be exact, which will lead to clinical progress.

Dr. Claire L. Straith (Detroit): I, too, have enjoyed Dr. McClintic's paper very much. I have been rather interested in some of the facial neuralgias myself, particularly Meckel's ganglion, and I have wondered in his opinion what is the best way of injecting. I have found personally that going through the posterior palatine canal with an angular needle about 3½ centimeters long is quite effectual in my hands, rather than by Sluder's method. The first man I have read about who suggested it was the man in England who suggested it in 1914 and reported 12 or 14 cases injected by the posterior palatine canal route.

I know we have personal experiences with these peculiar neuralgias and it is probably hardly worth our while taking them up, but one the other day puzzled me. A man appeared with an acute coryza and a terrific pain in his right antrum region; on transillumination, had a totally dark antrum on that side. His pain was in the posterior portion of the antrum, apparently, and involved apparently his gum tissue, too.

On the first day I saw him I probably made a mistake in feeling that in view of the X-ray and transillumination that he had an antrum involvement, so I opened that and irrigated it and it produced no good effect and apparently got no pus or secretion much of any kind.

The following day he appeared again, stating his pain was more of a sharp, shooting, neuralgic type of pain and those have been his symptoms since then and his pain is altogether localized around the posterior tuberosity of his jaw, not along the buccal nerve as discussed by Silverman, who makes his injection through the cheek, and not in the lower.

I wonder what injection would help him. I injected first as a testing method, novocain around posterior to the tuberosity and relieved the pain somewhat, but I am wondering whether permanent injection of that region or of the ganglia would help the man more.

Dr. Carl Snapp (Grand Rapids): I think this is a most timely subject and I should also like to congratulate Dr. McClintic for bringing it before us at this time. We all, I am sure, have cases right along of pain in the head which baffle us more than any other one thing that we are likely to have to treat in our practice. Patients come with headaches, and these headaches, from the first moment they begin to describe them, one can almost tell they are not sinus headaches, and after continuing the clinical examination, we eliminate the sinuses and other sources.

These pains are, we feel, usually of some ganglionic type. I thing it is a subject that is greatly in the dark yet and the procedure Dr. McClintic has presented is certainly sound, or at least sounds like a very logical one and I hope will prove to be all that we expect of it.

Dr. McClintic said when he was speaking that we should not be in a hurry to take up these things and promise the patients too much. I mean to take them up too universally and become too enthusiastic about it.

Sluder's work has proved very successful in his hands, but I don't believe so successful in all of our hands. I have been very much interested in that phase of the work and I have attempted to cocainize a nasal ganglia in many cases and have had gratifying results, but I have had a lot of failures and we find a lot of those cases which do not respond and which are very unsatisfactory for that kind of treatment, some of these neurotic women, for instance, whose noses are narrow, and when you use an applicator and a little cocain, they become more or less hysterical and complain of more pain than before and you really can't do much of anything with them, and even after minor surgical procedure to make it more accessible, even though you cocainize it, it doesn't respond.

You all remember at the A. M. A. meeting a few years ago when Dr. Carlson of Chicago, in trying to explain the reasons for Sluder's wonderful results which he reported at that meeting before our session, said he was unable at that time to offer any explanation.

Dr. McClintic (closing the discussion): In explanation of the results of sympathetic neurectomy on a patient for facial neuralgias, I think the thing most of us fail to do is to interrupt the proper nerve. I also think we might fail in relieving some of the pains in the head after removing the superior sympathetic ganglia because we miss the fibres coming over from the ninth and tenth nerves. The question is whether the pain is being transmitted through the sympathetic or whether from the ninth and tenth nerves and coming up into the head after joining the carotid artery.

It is my contention, that the reason why we haven't always relieved trifacial neuralgia is due to the fact that we only destroyed fibres from the superior cervical sympathetic and did not destroy the ninth and tenth and I wrote this to Frazier in explaining his failures and he accepted my criticism of his conclusions as correct.

If you get the fibres coming from the ninth and tenth nerves and also those from the cervical sympathetic, you get all of them, unless they come out over the seventh, that is the only one left.

Another point to remember is that again we may not relieve trifacial pain by removing the superior cervical ganglion because fibres leave the sympathetic chain before they get to it and pass to the artery lower down and miss the superior cervical ganglion, so you see the loopholes, but if you strip them all off the artery, you are pretty apt to get all of them, but my point is that I object to the stripping of the artery—I don't like it in my own service. Generally surgeons strip the arteries and I know of two cases in which both lost a leg.

Yesterday the surgical section had another paper describing getting these results by the injection of typhoid vaccine into the veins. We tried it and the first man got thrombosis in both legs and he had had trouble with only one, so for that reason I much prefer the injection of the alcohol to doing the operation of periatrorraphy.

Now as to the mustard oil to relieve pain, it is possible it destroys the nerve endings or lowers the sensation of pain. I don't think any of us know how pain is aroused, or what it is that incites the sensations that go to the thalamus and produce pain. To be perfectly honest, I don't attempt to explain it, nor why the individual should have pain in the foot from psychic disturbance.

As to Dr. Straith's question, quite a number have done that and I often question whether you relieve any pain other than that transmitted over the nerve through the canal.

As to Sluder's method, going through the lateral wall of the nose, there is no question you can get through there. It takes force and you have to go through bone to do it and I have wondered why the head surgeons have not adopted the method of using a curved needle and getting a spheno-palatine ganglia through the space between the cheek and maxilla. I prefer going through the palatine canal. I have done it on the cadaver and in cross sections and studied the relations there and I see no reason why, with a slightly curved needle it could not be done from within the cheek. Have you tried it?

Dr. Straith: I have tried it, but if you get into the canal and go up 3½ centimeters in the canal, you can't miss it, either. I try to do it that way.

Dr. McClintic: Now, the case of the pain—I am disposed to think if he continues injections he might get relief. We had a case the other day. The case is trifacial neuralgia and the man was suffering intense pain for three weeks and it was a typical neuralgia pain and the man, like all of those cases, had his teeth out and didn't get any relief, so I suggested that we inject the nerve, the inferior dental nerve and he went to the dentist to have it done and the dentist didn't understand my instructions and injected the wrong nerve. He injected the mental nerve.

The X-ray was negative, but when he injected the inferior dental nerve, the pain was relieved. It was injected several times and now the man is fairly comfortable. There is a case where the condition is local. There is something in the dental canal of the mandible that is causing the pain in that case.

Another thing, we must differentiate between trifacial neuralgia and glossopharyngeal neuralgia and if you paint the tonsil region with cocain, you will relieve nasopharyngeal neuralgia. That won't relieve trifacial neuralgia, a nice differential point.

RUSSIAN SCIENTIST, PAVLOV, HONORED

The Soviet Government, honoring the eightieth birthday of the distinguished physiologist Ivan Pavlov, assigned 100,000 roubles ($50,000) for the re-equipment of his laboratory in Leningrad.

Pavlov is probably the most outspoken critic of Soviet ideas and institutions at liberty within the Soviet Union today. His age and scientific eminence have won him a privileged position not unlike that of Tolstoy in pre-war times, and many stories, some probably apocryphal, circulate regarding vehemently critical and defiant speeches made by him against various measures of the Government. Last year he led the opposition to the admission to the All-Union Academy of Science of a large number of new members, including some prominent Communists, and achieved the temporary black-balling of three of these candidates. While the "Izvestia" merely reviews Pavlov's scientific career, the "Pravda" offers the following criticism of his political and social views:

"Pavlov's attitude regarding the world and October revolutions as a most regrettable historical fact, his lamentations over the alleged destruction of cultural values by ignorant Communists, his accusations that the ruling party persecutes science, finally, his indignation over the class policy of the party in higher schools and his demonstration during the elections to the Academy of Science—all this clearly characterizes his political physiognomy.—Manchester Guardian.

FATTY DIET CONTROLS EPILEPTIC ATTACKS

Epileptic attacks may be controlled by a diet rich in fats such as cream, butter, mayonnaise, bacon, and oil combined with a reduced quantity of sugars and starchy foods. Reporting on experiments carried on at the Chicago State Hospital, Dr. A. M. P. Saunders stated that of a group of eighty women epileptics thirty-two were much benefitted by the diet. The rest of the patients were those who had some other physical disease or were mental defectives and did not respond. With this diet the fat is only incompletely broken up in the absence of carbohydrates and a large amount of acid is formed during the digestion. While the process is not completely understood it is thought that this production of acid is the essential thing in obtaining results. The diet must be estimated and adjusted for each individual case and must be under medical supervision during the treatment, Dr. Saunders said, since some patients require only a slight change from the normal diet, and others a much more restricted diet. The patient's co-operation is necessary since, after the epileptic seizures have been brought under control, even so slight a thing as eating a piece of candy may again bring on seizures.—Science Service.

CASE REPORT*

EUGENE A. OSIUS, M. D.**
DETROIT, MICHIGAN

The patient was a 28-year old, married, Italian laborer who entered the hospital December 21, 1926, with a chief complaint of pain and swelling in the calf of the right leg.

On November 11, while at work, patient was taken with a sudden spell of dizziness, and (as he later said), he had a sudden, lancinating pain which radiated down the posterior part of the lower right leg. He left work and went to bed. After the first sharp attack, it became less severe, but was still present, and within three days the patient noticed a swelling just behind the right knee. The pain here became more and more severe and the patient was treated in another hospital for "rheumatism" for two weeks. Upon entry December 21, 1926, he still complained of severe pain in his leg and the swelling was still present and increasing in size. The mass itself was very tender to touch, he stated, and the pain radiated down into the lower leg and foot. The location of the tumor and the discomfort and pain upon any manipulation or movement, had precluded the use of his leg for some time.

There is no record at this time of any sweats, involvement of other joints, sore throat, or fever, which he had noticed subjectively.

He had had "rheumatism" fifteen years ago, of a vague and indefinite character, but had evidently been in bed because of it. While in the army he had been wounded in the precordial region with a bayonet, which wounds drained and discharged for some months. There was no history of any venereal disease. He had been well and working since the war.

The family history was entirely negative, mother having died of cause unknown; father having been killed during the war. The patient's wife was living and well, having had one baby that died at the age of five days, of "bronchitis."

Physical examination at the time of the first entry to this hospital revealed a well developed, poorly nourished, white male, whose right leg is held flexed at the knee, elevated, and is guarded diligently from motion. There was marked tenderness in the right popliteal space, with a definite 6 cm. in diameter, localized swelling of the tissues in this region. They were tense and tender, but neither red nor hot. There was no fluctuation, although a definite pulsation was felt over the entire mass. At this time there was no auscultation of the mass. The patient's temperature was 99.6, pulse 120-100 and respirations 20 per min.

Examination of the head revealed eyes and nose entirely normal, but inspection of the mouth showed teeth in poor condition, with retracted gums, pyorrhea, somewhat foul breath, mucous membranes pale, and tongue coated. The tonsils were of moderate size and imbedded. The neck displayed no cervical adenitis, but there was a marked venous pulse visible.

Inspection of the chest revealed two large 5-6 cm. long scars over the left side anteriorly and there was marked retraction of the intercostal spaces over the entire precordium with each heart beat. There was no impairment of resonance of lungs and no alteration of breath sounds.

Heart impulse was heaving. Heart measurements were—left border 13 cm., right border 4 cm., from midsternal line, great vessels 6 cm., and mid-clavicular line 8 cm. Sounds were regular, of fair quality, with a definite presystolic rumble and a not-loud systolic murmur, at the P2 area and apex. There was also a definite early, high pitched, diastolic blow at the apex, left sternal border and A2 area. One felt a marked presystolic thrill and P2 was markedly accentuated. Blood pressure 180/0. Abdomen was entirely negative, except that the heart sounds were heard in the inguinal region.

Extremities, except for the above mentioned pathology, were entirely negative. The dorsalis pedis artery was pulsatile both sides and nutrition of both feet was good. There were no petechiae. Urine was entirely negative. Blood Wassermann negative. X-ray of the knee revealed an infiltration of the soft tissues, but no bony changes.

A small diagnostic puncture of the mass in the right popliteal space was made and bright red blood obtained. Diagnosis; Aneurysm of popliteal and posterior tibial arteries, Mitral Stenosis and aortic regurge. Etiology" Rheumatic heart disease.

The patient was seen in consultation by Dr. Max Ballin, who advised several weeks of rest for the establishment of good collateral circulation before operating upon the aneurysm.

The patient was accordingly discharged on the 24th day of December, 1926, and was again reentered the 30th day of December, 1926, at which time the physical findings were practically the same as on the previous entry and with a slightly yellowish tinge to his skin, but no other evidence of possible jaundice. There was not sufficient evidence for the diagnosis of aortic stenosis but mitral stenosis and aortic regurge were present. The spleen was not palpable and no petechiae were noted on January 1, 1927. Temperature 100.0-100.8; Pulse 100-120; Respiration 22.

Before operation on the 5th of January, 1927, an X-ray plate was taken of the patient's chest, with the following report:

"Examination made of this patient's chest reveals multiple shot-like shadows of metallic density on the left side of the chest in the axillary region. There is evidence of considerable irregularity of the anterior third of the shaft of the sixth rib, which had the appearance of the end result of a chronic osteomyelitis process. There is very definite left ventricular enlargement of the heart shadow. The lung field is clear. No evidence of mediastinal tumor shadow. The trachea is in the midline. It is not displaced or constricted." It was thought that there might have been a traumatic etiology for the aneurysm inasmuch as numerous metallic shots were found by X-ray in the region of the chest scars

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* From the Surgical Service of Harper Hospital, Detroit, Michigan. Gross specimen photographed by Ruslander. I am indebted to Dr. Harold Fenech for assistance in this case.

** Dr. Eugene A. Osius is a Graduate of the University of Michigan, 1921. Interne Herman Kiefer Hospital, 1921; Massachusetts General Hospital, 1922-1924; Harper Hospital, Jan. 1924-July 1927; One year post-graduate study in Berlin, Budapest and Vienna; Practicing General Surgery, Harper Hospital, Detroit.

above mentioned. None were reported on the knee X-ray plate.

The same day the patient was operated upon with consultant for the aneurysm. A 3-4" longitudinal incision was made over the swelling. There was evidence of leakage of blood at the site of the aneurysm, with the formation of a clot 6x5 cm. The sac of the aneurysm involved the lower part of the popliteal artery, and the beginning of the posterior tibial artery, being three to four cm. in diameter with a very thin wall which was incised and thrombus removed. Because of the size of the aneurysm and general condition of the surrounding tissues and vessels, excision and ligation was performed.

The patient's right foot upon leaving the table was cool and white, and it was felt that collateral circulation probably would not compensate for the loss of the above mentioned arteries. This proved to be true.

January 8, 1927, the lower leg was amputated six inches below the knee joint, a posterior flap being made. Dissection of the amputated leg and incision of the vessels therein, revealed a small blood clot, about the size of a wheat kernel, located 8 to 10 cm. below the line of amputation. This partially occluded the posterior tibial artery as well as one of its smaller branches. Examination of this clot by our pathologist, to whom the history of the case was unfamiliar, revealed "a blood clot undergoing purulent softening, no organization seen, but from autolytic changes should judge it to be about 48 hours old."

The patient recovered nicely from the above operation and except for a slight discharge from the amputation wound, flap healed nicely.

A blood count was taken on February 3, 1927, because of the fact that the patient still appeared to be anemic. This revealed a hemoglobin 60%, white blood cells 12,300, red blood cells 2,270,000 and the differential smear showed polymorpho nuclear cells 68%, lymphocytes 28%, large mononuclears 4% and evidence of a secondary anemia in the appearance of the red blood cells. No petechiae were found at any time.

During all of this time the patient ran a somewhat septic type of temperature, seldom going above 99.6, with a pulse in the region of 100 to 110, and we could not rule out nor could we prove a diagnosis of subacute bacterial endocarditis. It was our feeling that this condition was present and that the cardiac side at least could be explained upon that basis. It was thought probable that the patient might also have chronic adhesive pericarditis, because of the marked retraction of the precordium, with each heart beat; this last condition possibly being due to adhesions, resulting from war wounds.

Cases of subacute bacterial endocarditis developing aneurysms in the peripheral vascular system are not at all uncommon. The aneurysm usually starting from an embolus that has its source on one of the valve cusps of the affected heart.

On February 10, the patient suddenly expectorated some red-streaked sputum, which was associated with pain in the left lower chest, increasing on coughing, temperature 99.0, respiration 40, pulse 150, and the appearance of shock and some cyanosis. Physical examination revealed quite fine, moist and crepitant rales, over the lower lobe of the left lung. A tentative diagnosis of lobarpneumonia, or *embolic infarct*, was made.

The patient's condition became rapidly worse, he perspired literally pints of fluid, the fluid collecting in little pools in the various fossae of the skin. Within the next 24 hours there was dullness at the left base with accentuation of the aforementioned signs, and on February 11, the patient died.

Permission for postmortem was obtained and the findings were as follows:

A well developed man of thirty with two healed scars in the region of the left thorax in the anterior axillary line. Right leg amputated 6" below knee.

Abdomen was examined, after the usual incision was made, and revealed slight enlargement of the spleen, half again normal size, with marked congestion but no infarcts. The liver was large and of the nut-meg type with marked congestion. Kidneys were congested, slightly larger than normal, capsule stripping easily, but no infarcts found or emboli seen.

The chief pathology was found in the chest cavity. The lower lobe of the left lung was red, with the evidence of an acute pleuritis; it was consolidated, and upon section, presented the red hepatization stage of a pneumonic process. The rest of the lungs were negative.

The heart was very much enlarged, filling about one-third of the chest cavity; typically corbovinum, and many adhesions between the pericardium and chest wall, but none between the peri-epicardium. The heart lay free within the pericardial sac, which contained considerable clear yellow fluid. Upon section the left ventricle was markedly enlarged and hypertrophied and the right ventricle correspondingly large. In the right ventricle at the tricuspid ring, was a small fibroid nodule, situated at the base of the cusps. The aortic valve showed many large, friable, moss-like vegetations on all cusps, one being a bluish-yellow color, string-like in appearance, and some at least 1-2 cm. long. Some of these vegetations extended down upon the wall of the ventricle itself. The mitral valve showed a similar vegetative process and one mitral cusp showed a definite perforation 1/2 cm. in diameter, together with a very definite sacculated aneurysm of the cusp of the same region, from 1/2-1 cm. in diameter. Upon section and examination, these vegetations were seen to contain numerous gram-positive diplococci of the type resembling pneumococci.

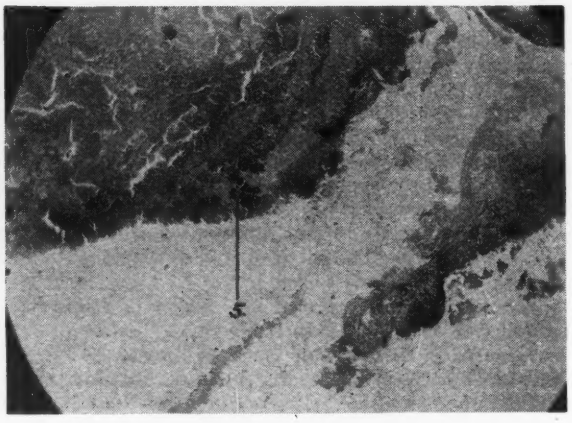
It is to be regretted that a blood culture was

Left ventricle showing aortic valve and freed mitral cusp.
1. Aneurysm and perforation mitral cusp.
4. Numerous vegetations on aortic valves and ventricular wall.

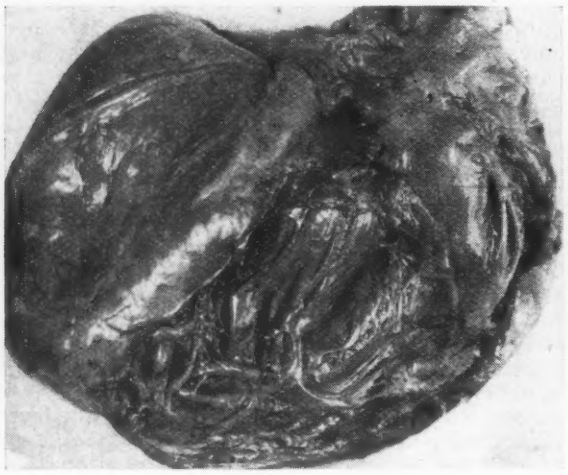
not made during the life of the patient as it might have enabled us to obtain the organism for further cultural studies.

We have felt that this case was worthy of a report in view of the medico-surgical aspect of the same and because of the interesting sequence of events that ensued, as well as the fact that we were able to follow the case to its ultimate conclusion. It has been instructive from the standpoint of the probability of a case of subacute bacterial endocarditis becoming a surgical condition through the route of one of its complications. While aneurysms in cases of subacute bacterial endocarditis are not uncommon we feel that they are sufficiently rare enough to warrant their being recorded in the current literature.

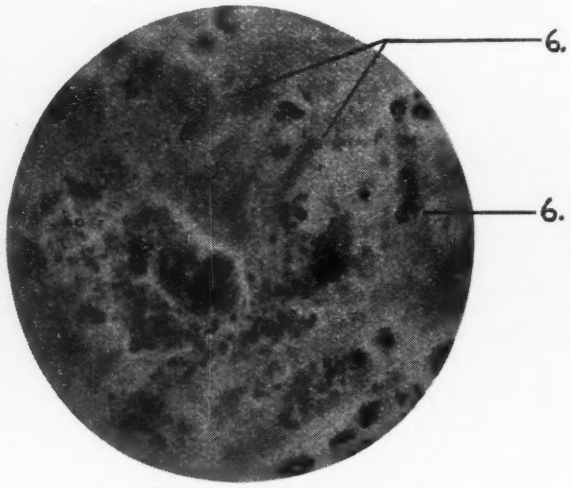
Left ventricle. Mitral cusp reflected to show
1. Aneurysm of mitral cusp of photo "A".
2. Perforation of same.



Low-Power Photomicrograph
5. Colonies of Bacteria seen in section of heart valve



Right ventricle.
7. Fibroid nodule in tricuspid valve region.



Oil-Immersion Photomicrograph
6. Bacteria—(Cocci.)

UNITED STATES HAS LARGEST RATIO OF PHYSICIANS

The bureau of education of the U. S. Department of the Interior has issued a statement on medical education, prepared by Dr. Nathan P. Colwell, Secretary of the Council on Medical Education and Hospitals of the American Medical Association. There are 149,521 physicians in this country in a total population of 118,127,654. The ratio is 126.59 physicians per hundred thousand of population, a greater ratio than in any other country. The District of Columbia leads in the United States in the supply of physicians, having 34.22 per 10,000 of population; California follows with 19.97; then comes Colorado with 16.81; Nevada with 16.66; New York with 16.31, and so on down the list to South Carolina, which has the least ratio with 7.09 physicians to each 10,000 of population. Graduates from medical schools in the United States increased in the two year period, 1926-1928, from 3,962 to 4,262. During this time the number of medical schools recognized by the American Medical Association has been reduced by six. The capacity of the medical schools, however, has been increased by the construction of enlarged plants. In the last twenty years new medical school buildings or enlarged teaching hospitals have been erected by at least forty-eight schools. Reports from sixty-three of the seventy-four recognized medical schools for the year 1926-1927 show that they had a total income of $11,983,783 and an expenditure of $11,308,800. The average amount paid that year by each student to the schools reporting was $254. The average expenditure by the school was $704 per student. Of the total expenditures of the medical schools, 48 per cent, or $5,469,214, was for instruction. In the last sixteen years, 67,198 students have enrolled in medical colleges, and 82.6 per cent of them have graduated. During 1928, there were 20,545 students enrolled in the medical colleges recognized by the American Medical Association.—Journal A. M. A.

MEDICAL OBSERVATIONS ON MY SOUTH AMERICAN-SOUTH AFRICAN CRUISE

LONA B. CARROLL, M. D.
DETROIT, MICHIGAN

I left Detroit January 19th. On my way to the train on that fateful afternoon I made five calls, so I was pretty well fed up on medical observations. Our first stop was Jamaica, and our next was Port of Spain. They were less than a week away from Detroit and a general practice in a Ford over icy streets. There is some excuse, then, for me when I say that I was not interested in medicine during these first two ports of call and I was just a bit bewildered over the sudden changes that were coming to me.

At Jamaica, however, I did observe one thing. There was a low, old-fashioned looking hospital—which I did not enter. I saw nurses with white caps passing back and forth and these nurses were both white and colored. Not black—just colored. There is a great distinction between colored and black, but *not* a very sharp dividing line between *colored* and white in Jamaica.

We saw almost no white children on the streets of Kingston. All seemed negro, or mostly negro. These little pickaninnies were the picture of health—no sign of rickets in these babies. The good tropical sun took care of that. I suppose they have other troubles that are not so plainly visible. In Kingston I saw one case of infantile paralysis in a boy about nine years of age. He was wearing a brace and was as well cared for as the children are in the states who have fallen into this grave misfortune.

At Port of Spain there were a great many East Indians. I was struck by the long, skinny, emaciated legs of the men, who were inevitably barefooted and walked in the streets mostly, rather than on the sidewalks. The legs of a full grown man would be scarcely larger than those of a boy of ten or twelve. I learned that these spindly legs were a racial characteristic and that there was nothing wrong with them—possibly the result of prolonged tropical diet.

At Rio I began to realize that I had left a trade at home (profession, I mean), and I started to be interested once more in medical affairs. It doesn't take one long to return just naturally to accustomed tracks of thought. I visited the only English or foreign hospital in Rio. It is called The Strangers Hospital. It had been an old residence, taken for the purpose, much as the same thing happens in our cities at home. It was cut up into many rooms—was unhandily laid out—elevators were few. Inclines were built for the convenience of the orderlies' wagons. There were a great many levels of a step or two which required these inclines. I visited a patient who had had an operation for appendicitis nine days before. She was coming along fine and was going home the next day. She was going home, also, against her doctor's orders. He was a Portugese who had been educated in medicine in London. He believed and practised the English custom of keeping appendix cases in bed for two weeks. She was an American from Detroit and was used to the week or ten-day method here—and go home she would and she did, signing out and accepting the responsibility quite cheerfully.

This patient told me that she had waited to get into this hospital and to get the bed she wanted. There were other hospitals in Rio, but they were run on the Portuguese order. A Portuguese hospital has no regular nurses and it accepts the whole family with the patient. The family, especially the husband, stays with the patient, sleeping with her, or bringing his own bed with him, so as to be on hand and wait on the patient.

Obstetrical cases are taken care of mostly at home: but if the case comes to the hospital, the whole family moves in, too. Usually the case is infected, or has other complications, and the mother or child, or both, usually die. Naturally, therefore, hospitals in Rio have a bad name for obstetrics. If the case comes through all right, the baby stays with the mother and the family in the room, and is taken care of a-la-grandmother as they see fit: I was not, however, in a Portuguese hospital in Rio.

We went to Sao Paulo and visited the celebrated Brazilian snake farm. The snakes are kept in an enclosure. In this enclosure are many small circular huts about two feet high, made of brick or stone. Each little hut has an oval door through which the snakes crawl, and rest all piled up in tangled heaps. I did not

* Dr. Lona B. Carroll is a graduate of University of Michigan, 1916. Pediatrics and Obstetrics. Member of Woman's Hospital Staff.

ask how many snakes they have on the farm, but there are not such a great number, I think a few hundred in all. The different varieties all seem to be in together.

The snakes on this farm are brought from all over the world—but South America can supply a goodly number without importation. Once a snake is put into captivity he refuses to eat, so the keeper says, and lasts without food for about seven or eight months. The venom is taken from the snakes about every fifteen days, and injected into a horse, and the serum is prepared the same as we prepare diphtheria antitoxin. This snake laboratory at Sao Paulo was founded by Vetal Brazil and for many years was a private enterprise. Theodore Roosevelt, Sr., visited it and was much interested, and gave it some support. Since the war it has been taken over by the government of Brazil. They have, in connection with the farm, a manufacturing plant to manufacture the serums, and also a museum. Besides the snakes, the farm keeps poisonous toads and spiders from which they also make sera. The snake sera made are either mixed or specific. As a general thing the mixed serums are more to be desired, as often the exact variety of snake which has made the bite is not known.

Buenos Aires is a beautiful city—a city of stately edifices—no less dignified word can suit the buildings one sees in Buenos Aires. There are many hospitals in Buenos Aires and the rule of the beautiful and the imposing applies to the hospital buildings as well as to the other public buildings in Buenos Aires. There is a medical school in Buenos Aires as well. All the public hospitals are state maintained and no one can go into these hospitals and pay anything for care or for medical attention. Private cases are taken care of in private hospitals at enormous expense. There is no *middle* class in Buenos Aires, so the mass of the people are taken care of in the *clinica*, as they call it, and only the wealthy have their private sanitariums and private physicians on a much more elaborate system than that to which we are accustomed.

With Dr. Soding, who is in the employ of Parke, Davis & Co. in Buenos Aires, I visited the University Hospital there. They have a wonderful building. I have never seen so much and such good tile work so generally used. The hospital was a marvelous structure and wonderfully equipped. The X-ray room, which they showed me with pardonable pride, was absolutely the last word. In fact, every part of the hospital was very completely equipped and the building, as I said before, was a regular masterpiece. These buildings, fine as they are, have no heating system. No public buildings in Buenos Aires are ever heated and it gets *cold* in the Argentine in winter.

These South American hospitals have two main differences from ours. First, they have no nursing force as we know it. They have paid attendants or orderlies and a doctor or interne does the work which these attendants are not trained to do. These attendants are also mostly men. We draw *our* nurses from the upper or middle classes. The Spanish women of these classes do not work. They are supported, as were our women of scarcely more than a generation ago, willingly or unwillingly by some male relative, till they escape through the only opening for them, a more or less suitable, but always welcome marriage. In other words, Latin women of the upper classes do not work; they get married at any cost.

This absence of nurses gives to the hospitals a bare look. They do not have the cordial, hospitable appearance that is given to our hospitals and institutions by the pretty girls passing to and fro in uniforms.

The patients, as far as possible, wait on themselves. Babies are kept in the same bed with the mother. She can feed it whenever she wants to. No hospital training schedule for the babes of Buenos Aires. Babies are not given a daily bath—after the first bath, very often, they are not bathed till the mother is able to do it herself.

The second big difference from our medical management is the training of midwives as just midwives. There is in connection with the hospital a school for midwifery. I suppose, of course, that is better than letting midwives practice without a training, as they do in our country. But just *any* woman can take midwifery. There is no educational requirement, they are not taught obstetrics and almost nothing of asepsis. They are taught the mechanics of simple midwifery and the results depend very often upon the daring of the midwife and the endurance of the patient. A doctor is never called till a midwife has done her worst and the case, through general mismanagement, is often fatal. So doctors have a bad name for obstetrics in Latin countries. They have Caesareans, and pubiotomies and versions, which are always done by a doctor—usually by a sur-

geon—not by a special obstetrician, as in our country.

The fine University Hospital which I saw in Buenos Aires is entirely free, and Dr. Soding assured me it was one of the poorest in Buenos Aires. He apologized profusely that the shortness of the time would not let me see other hospitals; although this was the University Hospital and held rank as such. He told me that Buenos Aires has twenty absolutely free hospitals, and nobody can pay a piso in any of these institutions, which are supported entirely by the federal government.

The university hospital which I visited has this department of obstetrics to teach midwives, as I have explained. There is another hospital "much more luxurious," using the Spanish doctor's words, and this has a maternity department to teach obstetrics of a more advanced order to *doctors*. This hospital is also entirely free.

Obstetrics, as a branch of medicine, is looked down upon in Latin countries. A doctor would not call himself an obstetrician. To be great, and to be important, one must be a surgeon, and do spectacular surgery. No mere pill dispenser or midwife has much prestige here—and prestige and show are the life and breath of the Latin.

Leaving South America, we passed and called upon a little spot in the South Atlantic—Tristan-da-Cunha—an interesting little dot with a handful of souls who have lived and died on the island for three generations or so—England's farthest flung outpost. An interesting medical note, in passing, is the almost total absence of our so-called epidemic diseases on the island. These people are fed mostly on potatoes and fish, and their endurance is low, presumably, and they would probably yield very easily to an epidemic if one should get itself planted on the island. But such has not happened to them. The people of the island find their final exit through the ordinary gateways of accident, heart, kidney or other chronic disablements when the machine wears down.

Our next stop was Cape Town and that ushered us into the general dominion of South Africa. South Africa is a British dominion and things there are no different to any extent medically than they are here. Any differences there may be are simply attendant upon the local diseases, the personnel of the country and upon the financial situation in the country.

I visited the hospital in Cape Town. It is an old building and not modern. It had about 350 beds. But the medicine practised in the hospital is of a superior type.

The pediatrics division was interesting to me and it is of note to say that the number of ear cases and mastoids has increased during the past three to five years in Cape Town, just as it has in the states.

Cecil Rhodes left money to build a new university. It is being built a section at a time. The new medical building was the part of greatest interest to me and I went to see it. It was just three immense stone buildings—not unlike those at Ann Arbor. They are getting ready to build a new university hospital near the university proper. I saw the site. They are just starting to excavate.

In Cape Town a most interesting thing to me were the life-sized plaster casts of the Bushmen, who were the earliest inhabitants of Africa when the Portuguese came there about 1500 A. D. They correspond to our Indians. The Bushmen inhabited this particular part. The Hottentots and Bantus were further inland. The Bushmen are about extinct now. At least, this is the information given me by a young medical student who was my guide; but the museum man said there were 500 or 600 of them left. The Bushmen were a little people, all five feet or under in height, brown in color, fine featured—not like the negro in type. They were of an aesthetic nature as shown by the different rock carvings found in the neighborhood. They have a characteristic physical marking, which is a deposit of fat over their gluteal muscles—making their contour somewhat like a congenitally-dislocated hip case. Only this hump appearance is entirely a fatty deposit. The hump begins at puberty and lasts up to old age and is useful as the hump on a camel, to be used as the body needs it. As I said before, the Bushmen are very artistic. Many stores are found with carvings which are of a very superior grade of work. Geologists say these carvings are many thousands of years old. They show these large hipped figures, as well as figures of animals that have been extinct for ages. Besides these rock carvings there are rock paintings, using certain rocks and soils as coloring matter. These rock paintings often showed real connected thoughts, as though they were trying to convey a narrative—animals and people in action—shooting, running, looking, etc., and all showed these large hipped figures to signify the human outline.

From Cape Town we went north to Jo-

hannesburg. The Wet-Water Rand gold mines are at Johannesburg, and we were entertained at the mines—going through one of the mines and the works in connection with it. I was fortunate to know Mr. McLean, who was manager for the particular sections of mines which we were visiting. Mr. McLean was from my little native province of New Brunswick. He took me to visit the kitchens of the native workers in the mine and also, since I was interested, we visited the hospital maintained by the mine for the native workers. These natives must pass a vigorous physical examination when entering the employ of the mine. The great trouble from rock drilling is tuberculosis, due to the quartz dust. So the weight of each worker is checked upon very carefully, routinely and very often. The scales that are used are very especially fine, having cost about $600 each.

The beds in the mine hospital were cots. The blankets were grey, of the army variety. There was an M.D. in constant attendance. There were no nurses. The patients, all being men, of course, were cared for by male attendants. The hospital food was good, and suitable, and the patients looked well cared for.

The next day the members of the cruise went for a drive around Johannesburg, but I went to visit the Johannesburg General Hospital. It has been said, and I find incorrectly, to be the largest single hospital in the British empire. It is very large, however, and has 975 beds. It is a good hospital—that is, the work is of a high degree of excellence, but the building is old and not modern. I was shown over the hospital by the assistant superintendent, who expected to leave Johannesburg in about three weeks to visit the states. His visit was to include the Mayo clinic, which was much talked about in the hospital.

While I was in Johannesburg General Hospital the only thing at all which would remind one of Africa were the colored house boys, who acted as messengers, waiters and chore boys generally. These boys, so-called, often they were men of mature years, were quite unique. They were dressed in khaki clothes with shorts—long, bare legs and bare feet. They behaved and were treated as children and nobody seemed at all amused or amazed by anything they did. For example, I saw one wiry boy with a huge tray held high over his head, leave the diet kitchen with a modified charleston step, waltz gaily down the hall, and bring up at a stiff gallop at the nurse's table, the contents of the tray perfectly undisturbed. The nurse accepted the donation with complete equinamity as if he had not in any way performed out of the usual. So much for South Africa. It was fine, wonderful, and I'd like to go again. From South Africa we went to Egypt.

Before going on my trip I signed no less than four separate and distinct agreements not to practise medicine in Egypt. None of the other countries to which I was going seemed so aware of the fact that a doctor would just naturally feel that he must give them medical attention. When I got there I discovered the sad truth. About 90 per cent of the population of Egypt has ophthalmia of one type or another, and Egypt does not want any promiscuous doctoring. Trachoma is very common with its attendant blindness. I didn't practise medicine in Egypt because I promised not to, but I did open up on the hygiene question to a dilapidated looking woman with a wretched little sleeping baby on her back. The baby had its eyes wet with recent tears or a conjunctivitis already started and those eyes were surrounded with flies —just as I have seen flies clustered around the horns of a cow in the country. The dilapidated woman smiled as only a beggar can smile and called me a pretty lady: but, it was because I gave her bacsheash (alms) and *not* because I told her to protect the face of her sleeping babe. One or two more blind people doesn't make much difference in Egypt; they are used to it. And, as I said before, nobody can practice medicine in Egypt.

Egypt has other medical needs. The streets of Cairo were covered with litter and dirt. Rats are everywhere, but perhaps these and other factors present are natural scavengers of the place. Egypt has a dry climate. Bacteria do not thrive unless dampness is present. The hot sun of the place, with its germicidal rays, does much to keep the place reasonably healthy outside of the flies and the ophthalmia.

The Nile flows a thousand miles through the desert without a single tributary. It is the only water in Egypt that doesn't come in bottles. There is a saying in that country that anyone who drinks Nile water will return to the Nile. I am superstitious so I took a chance and am still alive. The city water supply of Cairo is tested daily. The clerk at the Shepheards Hotel earnestly assured me that these tests were reliable, because they were done by English

bacteriologists and were not under Egyptian government control.

It wouldn't be right to close this paper and not to mention Italy. Italy isn't used to being left out when people are talking about trips abroad. Italy keeps her beauty in her blue skies, her vineyards and her churches. Her blue skies weren't working when I was there, and neither were her vineyards, as vineyards. Her churches came up to schedule as far as my meagre art education could determine. They were maintained and it would seem, quite sufficiently, by "da passa da hat" method. Art must have its public support.

Still, Italy is worth visiting. It will take from ten to twenty years at least from the age of most doctors. It will take him back maybe a little too vividly to his clinic days. Big Italy does not differ very greatly from Little Italy. At least not in Naples. You can imagine yourself easily in the Italian section of New York, Philadelphia, or Detroit. The women have the same straight black hair, with the same large knob at the back of their heads, their tummies are just as big, their feet are just as slovenly, their aprons and their sweaters are just the same, they talk just as much and just as excitedly, and there are just as many crying babies. The babies are dressed in just as cheap, just as tawdry, just as showy and just as dirty finery. The older children look just as sallow and just as rachitic as they do at any of our city dispensaries. The men look just the same, too—dark visioned, untidy souls, doing untidy, messy things. Then, too, I saw a wedding and a funeral. All I needed to do was to born a baby and the cycle would be complete.

Thanks to the strong hand of Mussilini, Italy is much cleaned up. Naples is a fairly clean city. They say that it did not use to be. Mussilini has cleaned up Florence and Milan also. His iron hand is felt everywhere. People here are wondering if Italy will "progress backwards" when he has been removed either by age or by an assassin's hand.

So much for the medical observation on my cruise. When you realize that we were only a few days, and often only a few hours in a place, you will understand why my observances were not of a deeper nature.

I would like to say just a word in closing, about a malady that befell our ship after leaving Durban. But my information is disjointed and the diagnosis is mostly of my own making, so I will not write much about it. It is sufficient to say that the malady passed as malignant malaria and the type of fever strongly suggested that this was the case. However, there were no other milder cases of malaria on the ship. We lost four passengers with the disease, which ran a very high fever. The patient became unconscious from the pyrexia and died about six to eight days after the onset.

WOOD ALCOHOL BLINDNESS NEEDS FURTHER STUDY

The story of the blindness that comes from wood alcohol has not yet been completely told. A further study of this problem might well be made by the newly dedicated Wilmer Ophthalmological Institute, Dr. George E. De Schweinitz of the University of Pennsylvania suggested in his address at the dedication exercises. Physicians now generally believe that it is not the wood alcohol but some impurity in it, possibly fusel oil which is nearly always found in commercial wood alcohol, that causes the blindness. The bad liquor prevalent in recent years often contains wood alcohol and has been the cause of much wood alcohol poisoning and blindness. However, wood alcohol may also be inhaled or it may be absorbed through the skin. This is an important hazard in certain industrial operations.

The dedication of the new Wilmer Institute, devoted to the study and treatment of eye diseases, Dr. DeSchweinitz considered an outstanding contribution to American ophthalmology, which is the branch of medicine devoted to the eye. Other landmarks mentioned by this famous eye specialist were the invention of bifocal glasses by Benjamin Franklin in 1764; and the establishment of the first eye infirmary in this country at New London, Conn., in 1870.

One of the first operations for cataract performed in this country was done by Edward Reynolds of Boston. On his return from Europe where he had been studying the eye and its diseases, he found his father suffering from cataract. According to his own account, he "went to his surgery, offered a prayer to the Deity, took a glass of sherry and went ahead to do his best."

Routine examination and care of the eyes of all patients entering the hospital first was established in this country at the hospital of the University of Pennsylvania Medical School by Dr. Charles Norris of that institution. This was a particularly important step in the development of ophthalmology, Dr. DeSchweinitz pointed out. He declared that further development of this medical specialty would come through further co-operation between eye specialist, regular physician and pathologist, the latter being the specialist, who studies in the laboratory the changes brought about in the body's tissues by disease. Conditions at the new Wilmer Institute are particularly fortunate both for the individual patient and for the development of the science of ophthalmology.

MICHIGAN'S DEPARTMENT OF HEALTH

GUY L. KIEFER, M. D., Commissioner
LANSING, MICHIGAN

RESEARCH IN BACTERIOPHAGEY

For several years the Bureau of Laboratories of the Michigan Department of Health has carried on investigation in the properties of bacteriophage. The results have been so promising that a definite program of further research is now under way. A brief statement of some of the possibilities to be studied follows:

1. Production of streptococcus bacteriophage.
2. Preparation and properties of purified baceriophage.
3. Production of polyvirulent coli bacteriophage.
4. Study of effect of bacteriophage in mouse typhoid.
5. Study of keeping qualities of phage lysed proteins.
6. Antibody production by multiple antigens.
7. Continuation of studies of staphylobacteriophage as therapeutic agent.

1. Although great progress has been made in the study of the effects of staphylococcus and of coli bacteriophage in therapeutic work, the streptococcus infections have remained untouched. This is owing to the fact that no satisfactory streptococcus bacteriophage has as yet been prepared. To prepare such a phage is apparently not a simple matter. A fairly large number of streptococcus strains must be accumulated and tested with exudate from infections caused by such organisms. There are many methods by which bacteriophage has been obtained for other organisms. None of these can be neglected in the search for a streptococcus bacteriophage. The procedure must be more or less a trial and error method but is not only worth the effort; it seems to be more or less imperative. Our results with staphylobacteriophage demand that someone should make the effort to produce streptococcus phage.

2. In our efforts to learn more of the nature of the bacteriophage we have depended upon filtrates in which the bacteriophage was present in association with various proteins. In such material the phage is strongly absorbed to these proteins and the physical properties attributed to the bacteriophage are to a considerable extent due to the effect of this absorption. This applies particularly to the titration methods now used to measure the potency of bacteriophage preparations. Further, it is only through the use of purified phage that we can hope to investigate the role of the respective fractions of the bacteriophage filtrates now used in therapy. Finally, the use of purified phage is the only method that offers a solution to the problem of the nature of the principle.

3. Colon bacteriophage has been used especially in the treatment of pyuria with excellent results. However, at present it is considered necessary to prepare specific bacteriophage for each treatment, a slow and unsatisfactory procedure. It is necessary to search for a polyvirulent race or to make such a one by combining many specific races. This is a routine problem but one whose results should be quite encouraging.

4. The methods now used in bacteriophage therapy are entirely empirical. It is not known whether the *bacteriophage* or the *lysed proteins* are responsible for the results obtained. Further, the dosage and the route of administration depend upon some therapeutic success rather than upon a careful study of the effects of variations in dosage and method of administration. The entire subject should be carefully studied in an animal infection which is naturally acquired and transmitted. This problem has received some consideration notably by Bronfenbrenner and by Webster and his co-workers at the Rockefeller Institute. It is by no means covered.

5. If, as we suspect, the bacteriophage lysed bacterial proteins are particularly significant in bacteriophage therapy, it is necessary to learn more as to the quantitative and qualitative changes that occur in the proteins during standing. It is evident from work already done that the agglutinin response elicited with old filtrates is less than that obtained with fresh material. It has been claimed that the presence of the phage hastens this deterioration. In order to properly control our product it is essential that we should know more about this phenomenon.

6. This problem concerns not only bacteriophage therapy but has great significance from the standpoint of the use of multiple biological immunizing agents. It has been shown notably by Behrens of Purdue that successive inoculations of different antigens greatly affect the production

of antibodies and the content of antibodies already formed. It would appear that three antigens may be inoculated without marked effect upon the antibody response, but that when a fourth is added, there is no possibility of predicting the results. Such an observation is of tremendous significance in view of our present and growing practice in control of communicable disease. It requires exhaustive investigation with antigens at present in use. It would appear that such an investigation might shed some light on the apparent anomalies that are so frequently encountered in actual immunological practice.

We are and have been conducting therapeutic experiments in the use of staphylococcus bacteriophage. This work requires the production of staphylococcus bacteriophage in large quantities and necessitates constant check and study of the product. This work alone requires the entire time of one worker and the supervision of another. Our work outside of the laboratory requires frequent conferences and talks with physicians using bacteriophage and particularly co-operation with clinics where an effort is being made to carry on controlled experiments. This work should be extended as rapidly as possible. Further, we are completing a rather ambitious experiment in which we are studying the effect of inoculations of bacteriophage against B. typhosus with a view to substituting this product for the vaccine at present used. This work requires some travel and together with the other work now being done takes all the time of the present investigator. It is only by increasing the staff and facilities for work that we can hope to approach the problems outlined above which seem to us after several years of study and investigation most imperative. To leave them untouched is to seriously interfere with our progress towards our goal which is a rational basis for biological therapy and prophylaxis with the bacteriophage as a most helpful ally.—N. W. L.

A NEW COUNTY HEALTH DEPARTMENT

The Midland County Board of Supervisors at their October meeting approved a budget of $12,000 for a county health unit. Work is to begin January 1, 1930. Headquarters for the unit will be in the court house.

The Board also appointed a standing committee on public health which will act on all appropriations and all legal matters connected with the county health department. The entire county medical society will serve as an advisory board of health having general supervision of professional matters.

THE DIPHTHERIA PROTECTION CAMPAIGN

Arenac, Gladwin, and Muskegon Counties will have special campaigns for the protection of children against diphtheria, the boards of supervisors in these three counties having appropriated funds for that purpose.

In each case the Michigan Department of Health will furnish printed material—educational leaflets, letters to parents, schedule cards, 100 per cent schoolroom cards, and posters. The department also furnishes the toxin-antitoxin and Schick material, and gives organizing and lecturing assistance when required. Administration of the toxin-antitoxin is done in every case by local physicians and the money appropriated is used to pay for their services.

Immunizing of preschool children is receiving special emphasis this year.

Diphtheria reports show that while the incidence of diphtheria in the state was above normal during June and July, it has been considerably below normal during August, September, and October. The five year average of cases for October was 634, while the reports showed only 449 cases.

SMALLPOX INCREASING

The October smallpox expectance is 45 cases, in contrast to the 157 cases that actually occurred. More emphasis upon vaccination seems to be pretty generally indicated.

LABORATORY WORK SHOWS GAIN

Records in the Bureau of Laboratories show an increase of 17½ per cent in work done during July, August and September, in contrast to that done during the same period last year. With only a 6 per cent increase in the bureau budget it has been difficult to handle the added work satisfactorily. The effect has been felt especially in the divisions doing investigations and research, since these have suffered the curtailment necessary to carry the additional routine work.

HEALTH WORK IN SCHOOLS AND LNDUSTRIAL HEALTH

The close relation between health work in schools and industries is disclosed by the results of physical examination of applicants for employment. A very high per

cent of physical defects are found in those under the age of 20 years. It is further noted that the list of defects is very much the same among the youth and young adults in industry as it is among school children and from their nature the conclusion is drawn that many of these defective conditions should have been detected and corrected during school life.

Another significant fact is discovered in a survey of the schools of some of our larger cities. It shows that about 90 per cent of the pupils leave the schools directly to enter industrial or mercantile work. Obviously these two conditions have a decided bearing upon the health problems in the industrial field.

In making health surveys and trying to analyze certain health problems in our Michigan industries, one frequently hears severe indications against our educational system. Supervisors of Personnel and physicians in industries charge that many of their problems are due to failure of the schools to attain their objective: To fit the individual for life; that while much is done toward inspections, physical examinations and correction of defects in the lower grades, there is a lapse in this interest during later school life; that a high per cent of the young applicants for employment come to them in physically unfit conditions and with damaging health habits.

Hence industry recommends that the basis for industrial health work should be established in better and more continuous school health supervision; that health standards should be raised in the public schools, especially vocational and technical schools. What our vocational schools are now doing to establish proper health habits and correct physical defects, thus helping to solve the problems of preventive medicine in industry, is an interesting chapter.

—F. A. P.

CHILD HYGIENE

Final work on the study of all puerperal deaths occurring in Michigan from July 1, 1926, to December 31, 1928, carried on by the Bureau of Child Hygiene and Public Health Nursing of the Michigan Department of Health in conjunction with the Michigan State Medical Society, will be done in November. A total of 59 cases not quoted as puerperal on the original death certificates were queried from the Federal Census Bureau at Washington and found to be puerperal. Of these, 17 were from Detroit and 42 were scattered throughout the state. Dr. Florence Knowlton will consult the physicians on the 42 cases, securing the information necessary to complete the study.

Dr. Ida M. Alexander and Dr. Florence Knowlton are spending four weeks lecturing in county normals as a part of the department's special program of applied hygiene for county normal training classes.

Dr. Alexander discusses child hygiene in general, emphasizing the teacher's responsibility in noting abnormal conditions and seeing that they are brought to the attention of a physician.

Dr. Knowlton's subject is, "Contagious Disease Control in Schools," with special stress laid upon prompt medical attention and prevention.

Child Care Classes are now being conducted in Calhoun county by Nell Lemmer, R. N., in Arenac county by Bertha Cooper, R. N., in Ontonagon by Julia Clock, R. N., and in Delta county by Annette Fox, R. N.

Esther Nash, R. N., and Charlotte Ludington, R. N., are in Arenac and Gladwin counties assisting the local groups in organizing and carrying on toxin-antitoxin campaigns.

UPPER PENINSULA NURSES MEET

Public health nurses of the Upper Peninsula met at the Peter White library in Marquette, November 1 and 2, for a general conference. This was the second meeting of its type, the first, which was held last year, proving very successful. The conferences are intended to supplement the annual public health conferences held in Lansing which many of the Upper Peninsula nurses find it impossible to attend.

The program follows:

Friday, November 1—

10:00 a. m.—Registration.

11:00 a. m.—Communicable Diseases and Prevention.
Don M. Griswold, M.D., D.P.H., Deputy Commissioner, Michigan Department of Health, Lansing.
Discussion.
Dr. T. R. Laughbaum, Health Officer, Marquette.
Dorothy Hill, R. N., School Nurse, Munising.

12:30 p. m.—Lunch intermission.

2:30 p. m.—Laboratory Service of the Michigan Department of Health.
Ora M. Mills, Assistant Director of Laboratories, Houghton.

3:00 p. m.—School Nursing Program.
Mrs. Barbara Fletcher, Field Director, American Red Cross.

Discussion.
Elizabeth Alzheimer, R. N., School Nurse, Houghton.
Mrs. Hugh Gaston, R. N., School Nurse, Sault Ste. Marie.

4:00 p. m.—A Prenatal Call.
Metropolitan Life Insurance Company Nurses.

6:30 p. m.—Dinner.

Saturday, November 2—

9:00 a. m.—Plans of the Children's Fund.
Edna L. Hamilton, Director of Nurses, Children's Fund, Detroit.
Discussion and Questions.

10:00 a. m.—Planning a Health Education and Publicity Program.
Marjorie Delavan, Director, Bureau of Education, Michigan Department of Health, Lansing.

11:00 a. m.—A Time Study.
Mrs. Barbara Fletcher, American Red Cross.

THE DEVELOPMENT OF SANITARY ENGINEERING IN MICHIGAN

Speaking before a state convention recently, Colonel E. D. Rich, Director of the Bureau of Engineering, gave the following interesting resume of the development of one of the first branches of public health work to be started in Michigan. The importance of a wholesome environment was recognized long before its exact relation to health had been determined.

Colonel Rich said in part:

"No definite date can be settled upon as the beginning of sanitary engineering work in the Michigan Department of Health.

"In 1895 a clerk was employed who was a plumber by trade. As nuisance reports and other complaints came in from time to time, this man was sent out to investigate and give advice.

"The first positive step which seems to recognize the necessity of sanitary engineering work was taken when Act 28, P. A. 1909, was passed by the legislature. This law gave to the State Department of Health jurisdiction over water supplies of the state owned and operated by private companies. No jurisdiction was given over municipal supplies.

"In July, 1911, the present director of the Bureau of Engineering began work with the State Department of Health on a part-time basis. During 1911, 1912, and the first half of 1913, numerous investigations of nuisances, water supplies, and sewerage and sewage disposal were made on a part-time basis.

"On August 13, 1913, Act 98, P. A. 1913, took effect, providing for the employment on full-time of a State Sanitary Engineer and the necessary assistants. This title has since been changed to Director of the Bureau of Engineering. Previous to this date sanitary engineering service was paid for on a per diem basis under the Medical Inspection Act.

"The work began with one assistant engineer and one stenographer. A second assistant was added during the winter of 1914, and the force has gradually increased until there are now five assistant engineers, one water inspector, one director of plumbing, and three stenographers."

PREVALENCE OF DISEASE

October Report

Cases Reported

	September 1929	October 1929	October 1928	Average 5 years
Pneumonia	203	325	326	268
Tuberculosis	456	766	735	519
Typhoid Fever	49	53	44	105
Diphtheria	254	476	498	533
Whooping Cough	518	349	850	511
Scarlet Fever	330	723	559	643
Measles	235	444	176	183
Smallpox	73	170	55	39
Meningitis	84	85	40	15
Poliomyelitis	52	52	13	61
Syphilis	1,300	1,416	1,563	1,397
Gonorrhea	888	950	1,001	1,074
Chancroid	37	35	12	13

CONDENSED MONTHLY REPORT

October, 1929

Michigan Department of Health Laboratories

	+	—	+—	Total
Lansing Laboratory—				
Throat Swabs for Diphtheria				2347
Diagnosis	41	392		
Release	145	307		
Carrier	12	1450		
Virulence Tests	15	8		23
Throat Swabs for Hemolytic Streptococci				1675
Diagnosis	91	122		
Carrier	32	1430		
Throat Swabs for Vincent's	87	343		430
Syphilis				
Kahn	1441	7190	113	8744
Wassermann	3	3	1	7
Examination for Gonococci	210	2012		2222
B. Tuberculosis				
Sputum	70	510		580
Animal Inoculations				
Typhoid				247
Feces	17	82		
Blood Cultures	5	65		
Widals	8	59		
Urine	2	9		
B. Abortus				62
Dysentery				64
Intestinal Parasites				19
Transudates and Exudates				329
Blood Examinations (not classified)				135
Urine Examinations (not classified)				325
Water and Sewage Examinations				622
Milk Examinations				52
Toxicological Examinations				6
Autogenous Vaccines				2
Supplementary Examinations				196
Miscellaneous Examinations				434
Unsatisfactory Specimens				134
Total for the Month				18655
Cumulative Total (fiscal year)				69770
Increase over this month last year				1847
Houghton Laboratory—				
Examinations made — Total for the Month				2313
Cumulative Total (fiscal year)				8205
Increase over this month last year				822

Grand Rapids Laboratory—	
Examinations made — Total for the Month	6496
Cumulative Total (fiscal year)	24436
Decrease over this month last year	297
Typhoid Vaccine Distributed, c. c.	3330
Diphtheria Antitoxin Distributed, units	45310000
Silver Nitrate Ampules Distributed	9348
Scarlet Fever Antitoxin Distributed, Pkg.	105
Scarlet Fever Toxin Dick Test Distributed	550
Scarlet Fever Toxin Immunization Distributed	1750
Smallpox Vaccine Distributed, points	18575
Bacteriophage Distributed, c. c.	2404

We wish to announce the following people who have joined the Bureau of Laboratories:

Miss Zelma Zentmire, formerly with the Iowa State Board of Health, and Henry Ford hospital, Detroit.

Miss Elizabeth Brown, University of Wisconsin graduate.

Miss Jean Webster, University of Wisconsin graduate.

Percy M. Phelps, B. S. degree Wesleyan College, A. M. degree Brown University. Formerly connected with the Health Department, Bluefield, W. Va. Now at the Grand Rapids Laboratory.

Miss Gertrude Connor, graduate of Simmons College.

Miss Genevieve Foley, graduate of Simmons College, and is now at the Grand Rapids Laboratory.

Miss Pearl Kendrick, Chief of the Grand Rapids Laboratory, has a fellowship from the Rockefeller Foundation and is attending Johns Hopkins University for a year, at the end of which time she will return to the laboratory at Grand Rapids.

MENTAL DISORDERS MAY FOLLOW OPERATIONS

Mental and emotional disorders may follow surgical operations, but the operations themselves are rarely the cause of the upsets, Dr. Robert B. McGraw of Columbia University explained to Physicians gathered for the Graduate Fortnight of the New York Academy of Medicine. The causes of mental disturbances after operations may be found in the mental and emotional make-up of the patient. The operation is generally only a provoking incident. The same disturbance might have been caused by any other happening that would have too greatly strained the patient's ability to adapt himself. "Usually an operation is only an incident in the chain of circumstances leading to an emotional disorder as a breaking down of the adaptive ability of the organism. The adaptive ability of the patient breaks down at time of special stress," Dr. McGraw stated. "A serious operation may likewise be an important event in an individual's physical and psychic life." —Science Service.

TRUTH ABOUT MEDICINE

NEW AND NONOFFICIAL REMEDIES

Calcium Gluconate-Sandoz.—It contains calcium equivalent to not less than 12.40 or more than 12.80 per cent of calcium oxide. Calcium Gluconate-Sandoz is used to obtain the therapeutic effects of calcium. It is more palatable than calcium chloride and for hypodermic or intramuscular use is nonirritant. It is supplied in the form of a powder and in ampules containing 10 c.c. of a 10 per cent stabilized supersaturated solution. Sandoz Chemical Works, Inc., New York.

Atoquinol-Ciba.—The allyl ester of 2-phenyl-quinolin-4-carboxylic acid. The actions and uses of Atoquinol-Ciba are practically like those of cinchophen. It is supplied in the form of tablets 0.25 gm. (4 grains). Ciba Co., Inc., New York. (Jour. A.M.A., October 19, 1929, p. 1223).

Chiniofon. — Sodium-iodoxyquinolinesulphonate. —A mixture prepared from approximately four parts of 7-iodo-8-hydroxy-quinoline-5-sulphonic acid, containing not less than 26.5 per cent of combined iodine, and 1 part of sodium bicarbonate. Chiniofon, which is closely similar to preparations introduced under various proprietary names as wound antiseptics, has been found to be of use in the treatment of amebic dysentery.

PROPAGANDA FOR REFORM

Anayodin Not Acceptable for N.N.R.—The Council on Pharmacy and Chemistry reports that Anayodin was presented by the Ernst Bischoff Co., Inc., with the statement that it was composed of iodoxyquinolin-sulphonic acid with the addition of 22 per cent sodium bicarbonate, and that from the information before the Council it appeared that Anayodin was a mixture prepared from approximately four parts of 7-iodo-8-hydroxy-quinolin-5-sulphonic acid and one part of sodium bicarbonate, which during recent years has been used in the treatment of amebic dysentery while similar preparations under various trade names had before this been proposed as wound antiseptics. The Council informed the Ernst Bischoff Co., Inc. that, since it was not the discoverer of the preparation, the Council could not recognize a proprietary name for it, but, unless other conflicts appeared, its product would be accepted if marketed as chiniofon which name the Council had adopted for the mixture represented by "Anayodin", if acceptable tests were provided to insure its purity and uniformity and the advertising revised to meet stated objections. Ernst Bischoff Co., Inc. did not make its preparation acceptable and, accordingly, the Council declared "Anayodin" unacceptable for New and Nonofficial Remedies because it is an unoriginal preparation, marketed under a noninforming name without an adequate statement of composition; because no evidence was available to show that its identity and uniformity are adequately controlled; and because it is marketed with therapeutic claims which are unwarranted. (Jour. A.M.A., October 5, 1929, p. 1065).

Bert Sondergord and the Peptono Medical Co.—Under the trade name "Peptono Medical Co." and under his own name, Bert Sondergord, Cairo, Ill. has been selling a quack remedy for "lost manhood". He has also offered shares in the Peptono Medical Co. for sale. Sondergord advertised in

the Police Gazette and similar sheets. An investigation of the preparations that were being sold and of the stock selling scheme by the Post Office authorities resulted in the issuance of a fraud order debarring the Peptono Medical Co. from the use of the mails. (Jour. A.M.A., October 5, 1929, p. 1082).

Committee on Foods.—The Council on Pharmacy and Chemistry has established a Committee on Nonmedicinal Foods to pass on all food products for which health claims might be made. The Committee has prepared a series of rules under which it proposes to operate and these have been approved by the Council on Pharmacy and Chemistry. Any product which it is desired to have considered for "Accepted Foods" should be presented to the Committee on Foods, American Medical Association, 535 North Dearborn St., Chicago. The rules for the acceptance of foods are patterned on the principles of New and Nonofficial Remedies, with such modifications and relaxations as are made necessary by the different nature of the products concerned. Reports on products considered, having received approval of the Committee, may be published in the Journal of the American Medical Association under the section devoted to the Council on Pharmacy and Chemistry with a special heading, "Committee on Foods". At the end of each year, all reports shall be assembled in book form, with the reports of all products accepted preceding the reports of all products rejected. This book shall have the title "Accepted Foods". Jour. A.M.A., October 12, 1929, p. 1144).

Liver Extract No. 343.—The Council publishes a report of the Committee on Pernicious Anemia of the Harvard Medical School. This report states that in May, 1927, the Committee on Pernicious Anemia of the Harvard Medical School was organized to study the properties and to determine the clinical value of the fractions of liver that were being extracted, and to determine in what way a satisfactory product could be made available. Under direction of this Committee, Eli Lilly & Co. offered to manufacture one of the extracts developed. The function of the Committee was merely to supervise the production of a suitable extract of known potency until such time as the medical profession should have become accustomed to its use. The treatment of more than 100 cases of pernicious anemia with this extract indicated that a satisfactory product was available and it was accepted by the Council on Pharmacy and Chemistry for New and Nonofficial Remedies, under the name "Liver Extract No. 343". For the past year Eli Lilly & Co. has regularly produced lots of material, every one of which has been shown to be clinically effective in the treatment of pernicious anemia, by a standardized process approved by the committee. The committee now feels that its function of developing a reliable commercial product has been accomplished, and that it may therefore cease actively to supervise the manufacturing process. (Jour. A.M.A., October 12, 1929, p. 1144).

The Committee on Foods.—The need of some body to express judgment of food products and food advertising, in the same way that the Council on Pharmacy and Chemistry considers medical preparations, has become apparent. The Council has therefore created a special committee on foods. The manufacturers of food products, distributors and all other interests in the promotion of natural food substances or of modified foods, for which claims are made in relation to the promotion of good health, will be asked to submit to the committee the products and the advertising material used in advancing their sale. If a product is found acceptable by the committee, advertisements of it will be permitted in the publications of the American Medical Association, the product will be listed in the book on foods similar to New and Nonofficial Remedies, and the manufacturers will be permitted to use a symbol indicating that the product has been accepted by the committee for listing in the book of foods. If the product cannot reach the standards set forth, a report will be published as is done for drug products, and advertising of the preparation will not be permitted in the publications of the American Medical Association. The work of the Committee on Foods should do much to carry still further the message of good hygiene and of scientific medicine. In beginning this work, the Council on Pharmacy and Chemistry again asks the complete support of the medical profession. Only by the sincere co-operation of the medical profession with the committee can it achieve the prestige necessary to complete attainment of its objects. (Jour. A.M.A., October 12, 1929, p. 1147).

The Antipellagric Vitamin.—Evidence has been furnished that the so-called accessory food factor formerly designated as vitamin B and supplied in comparative abundance by yeast apparently contains, in addition to the antineuritic vitamin, a factor which promotes growth and cures and prevents dermatitis in rats; consequently it has been regarded as identical with the "P-P" factor described by Goldberger and others as curative and preventative of human pellagra. The newest American designation of this is vitamin G—the vitamin B2 of British biochemists. There is little doubt that both of these water-soluble vitamins are essential to growth and well being; and it seems reasonably certain that pellagra is due to a vitamin deficiency. It is now known that unheated yeast is rich in both and that cereals contain more vitamin B than vitamin G; milk and meat, the reverse. The vitamin G value of wheat and maize is low, as is that of dried legumes such as peas. Meat and egg yolk are richer in vitamin G than are the cereals, while liver and fresh milk are excellent sources of this dietary adjuvant. (Jour. A.M.A., October 12, 1929, p. 1149).

The W. R. Darlington Fraud, the Kuro Remedy Company's "Pile Cure".—For some years W. R. Darlington of Kansas City, Mo. has been selling an alleged cure for piles. An investigation by the Post Office authorities brought out that the preparations sold by Darlington were put up by Parke, Davis & Co. at their Kansas City branch. According to Darlington, the ingredients of his "pile treatment" are as follows: Pile Treatment Tablets:—Tr. Horse Chestnut, 1 min. (R/No. S-272690, P. D. & Co.) Compressed Tablets:—Potassium Bitartrate, 4 gr.; Sulphur Flowers, 7 gr.; Ext. Cascara Sagrada, 1½ gr. Pile Ointment:—(R/No.S-287974, P. D. & Co.), F. E. Hamamelis Lvs., 1 fl. oz.; Balsam Peru, 120 gr.; Po Fenugreek, 1 oz.; Wax and Petrolatum, Qs. Because the scheme is one for obtaining money through the mails by false and fraudulent pretenses, the Kuro Remedy Co. and the Kuro Co. were debarred from the use of the mails. (Jour. A.M.A., October 12, 1929, p. 1163).

Mizar Again.—For a good many years Joseph Sorokowski, Chicago, has been selling nostrums. His chief nostrum, "Mizar", sold as a remedy for rheumatism in particular, but also recommended for sprains, chilblains, headaches, frost-bite, "ear-sounds", cold in the chest, and asthma, was examined more than five years ago by the A.M.A.

Chemical Laboratory, which reported that the product was an ointment having as a base, a mixture of soap, petrolatum and a saponifiable fat, with red pepper as the active ingredient. The directions for using Mizar were that it should be rubbed on the parts affected and then a bandage put on. In two or three days an eruption might be expected to appear, which would prove that the rheumatism was "coming out". In addition Sorokowski has been selling "Logos", recommended for amenorrhea and "loss of manly strength", and "Zdrojanka", "an unequalled remedy for headache and hair strengthening." In a prosecution by the government it was brought out that, when analyzed by the federal chemists, Mizar was found to be an ointment containing capsicum, and Logos was found to contain 82 per cent of alcohol with other volatile matter aggregating 93.5 per cent. As the evidence shows that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, the Postmaster General issued a fraud order against Joseph Sorokowski, Z. Joseph Sorokowski, Josef Sorokowski and J. Sorokowski, thus denying the use of the mails for the sale of the nostrums. (Jour. A.M.A., October 19, 1929, p. 1240).

Borocaine Not Acceptable for N.N.R.—The Council on Pharmacy and Chemistry reports that under the proprietary, nondescriptive name "Borocaine", Sharp & Dohme, Baltimore, market procaine borate, the boric acid salt of the base procaine. The product was placed on the market on the basis of work published by Copeland and Notton, who adopted the name Borocaine to designate the borates of various anesthetic bases which they experimented and who, according to Sharp & Dohme, gave their approval to the British Drug Houses to manufacture procaine borate under the title Borocaine. The A.M.A. Chemical Laboratory examined the product marketed as Borocaine and reported that it was the borate of the base procaine—that is, procaine borate. From a study of the literature it was concluded that the procaine borate studied by Copeland and Notton agreed essentially in composition with the procaine borate prepared and described in 1910 by Einhorn and Uhlfelder. Since procaine borate was previously described in the literature, the Council could not recognize the name Borocaine on the score of novelty, and since neither Sharp & Dohme, the British Drug Houses nor Copeland and Notton discovered the therapeutic value of procaine or even the properties of procaine when contained in a solution in which ionization of the procaine salt does not occur, the Council could not recognize the name Borocaine under the clause which permits the recognition of a proprietary name for a previously known substance discovered to have therapeutic value. The Council therefore declared "Borocaine" unacceptable for New and Nonofficial Remedies because the application of a proprietary name to procaine borate is considered not to be in the interest of rational therapy. (Jour. A.M.A., October 26, 1929, p. 1309).

Cascara-Agar Not Acceptable for N.N.R.—The Council on Pharmacy and Chemistry reports that, under the name "Cascara-Agar", the Reinschild Chemical Co. markets a preparation stated to contain "15 per cent of a watery percolation of two-year-old cascara bark, which is processed into No. 1 Agar, cut to size" and is recommended for use in constipation. It is stated on the trade package that the preparation is: "A harmless vegetable addition to breakfast food. Each teaspoonful contains a mild and specially prepared solution of Cascara Tea". Since no statement as to the amount of cascara contained in the product was given, the firm was asked to make a plain statement of the constituents of the product. The firm replied giving the method of preparation of the product. However, since no details were given as to the method used to "debitter" the cascara, one cannot say how much of the active principle of cascara was lost in the process of preparation and therefore the amount of cascara in a given quantity of the finished product cannot be judged. Experiments carried out lead to the conclusion that "Cascara-Agar" contains at most only a trace of cascara, and that it is misleading to call the preparation "Cascara-Agar". Information was received that the Reinschild Chemical Co. still markets "Regulin", a product which has been stated to be prepared in the same manner as is "Cascara-Agar". Since the Council does not accept an article under one name if an essentially similar product is marketed by the same firm under another name, this makes "Cascara-Agar" further objectionable. The Council declared "Cascara-Agar" unacceptable because it is an indefinite mixture marketed under a misleading name with unwarranted therapeutic claims, and because an essentially similar product is marketed by the same firm under another name. (Jour. A.M.A., October 26, 1929, p. 1309).

MME. CURIE HERE FOR SECOND GIFT OF RADIUM

America has been recently hostess to the greatest woman scientist the world has ever known. Mme. Marie Curie, co-discoverer of radium, has come to accept a second gift of a gram of the precious substance from her friends and admirers in this country. When the first gram was presented to her in 1921, she turned it over to the Curie Institute of the University of Paris. The second gram will be given to the Warsaw Cancer Hospital, which since 1921 has rented a gram, Mme. Curie herself paying the rental with the income of a money gift she received with the first gram of radium. Warsaw is Mme. Curie's native city, although she has worked and lived most of her life in Paris. Mme. Curie and her husband, Pierre Curie, discovered radium but refused to make any personal profit from their discovery. They gave it to the public together with the methods they evolved for producing radium. These same methods are in use today in the radium industry. For years these great and generous scientists struggled with a meager income and without even an adequate laboratory. Pierre Curie, struck by a truck, died in 1906 without ever having a proper laboratory in which to use his great talents. Mme. Curie finally acquired the laboratory, planned too late for her husband to enjoy, in the Curie Institute. However, the small supply of radium in her laboratory was needed by the government during the war, and after the armistice she found herself without any of the precious substance. Then her admirers and friends in America came to the rescue with the gram of radium and the money which was meant to make living conditions easier for her. Characteristically, she used it to rent radium for the Warsaw Cancer Hospital.—Science Service.

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DECEMBER, 1929

"I hold every man a debtor to his profession, from the which as men of course do seek to receive countenance and profit, so ought they of duty to endeavor themselves, by way of amends, to be a help and ornament thereunto."

—Francis Bacon.

EDITORIAL

THERAPEUTICS

This is a large subject, yet those who read the symposium which appears in this number of the Journal, must admit that a great deal of information has been presented. The subject is important as one's success in the practice of medicine depends upon how he manages his patient. While diagnosis is of paramount importance, therapeutics is concerned with the immediate comfort of the patient, cure if possible, but at all events the relief of distressing symptoms. Not to be misunderstood, let it be emphasized that diagnosis is always more important than treatment, for we must know the condition to be treated before we can treat it.

The importance of suitable diet is being emphasized and within the past decade or so, with the development of physiological chemistry and due in large measure to the work of McCollum and others, nutrition has become a science. Dr. Stewart quotes McCollum to the effect that "the chief factor responsible for human deterioration in recent times lies in the unwise choice of foods." If this be true it is apparent at once how much proper diet means in the treatment of actual disease conditions.

Stewart emphasizes what he calls the positive phase of dietotherapy. In times past the patient was dismissed with a warning regarding the articles of food which he must not eat, so that in the minds of the laity the word *diet* had come to mean starvation, or at least privation. It is only recently that it has taken on the significance of proper preparation and selection of foods.

Dr. Stewart discusses the dietetic treatment of intestinal stasis, which, as everyone knows, is a common and in many cases a stubborn condition to treat. The subject of acidosis is concisely dealt with. The author mentions the two types, the acid ash and the alkali or acetone type. In normal conditions the end products of the combustion of starches, fats and a large portion of proteins are eliminated by the respiratory process. Acidosis is apt to occur in conditions in which the cardiac and pulmonary circulation is interfered with. The author of the paper has dealt with this phase, namely, the prevention and treatment of acidosis clearly and at length. The conclusion consists of a discussion of mineral requirements, vitamins and deficiency diseases. The paper is an excellent summary of a big subject.

* * *

Physiotherapy is the subject of Dr. Paul Roth's paper. The doctor goes on to show how physical methods in the treatment of disease have been employed empirically from the earliest times. He draws attention to the healing power of nature and stresses the fact that physiotherapy is only an attempt to create conditions more favorable to this healing process. Attention is called to the study of the borderline between health and disease. In other words, the author stresses the importance of studying the case in the earlier stages of illness, in fact, before the patient has become incapacitated. In this he is in agreement with MacKenzie, the great Scottish physician, who felt that greater attention should be given to the earliest symptoms of disease rather than to the terminal stages. Dr. Roth rightly states that physiotherapy has a great place in the preven-

tion of disease. Then we have discussed such physiotherapeutic agents as air, light, electricity and exercise. In a word, "physiotherapy makes use of the same agents that are primarily indispensable for the promotion of life."

* * *

Dr. Yoder presents an interesting discussion of psychotherapy. After reviewing briefly the history of the subject from the earliest times, including the work of Mesmer (1736), Christian Science and the work of Freud, all of which have fallen short, the speaker is inclined to be more favorable to the work of Jung. Psychotherapy means treatment with the mind, and he makes it plain that he means the mind of the operator and not that of the patient. Every successful physician is a good psychotherapist, according to Dr. Yoder.

Psychotherapy is indicated in those cases in which the presence of definite organic lesion has been excluded in a painstaking and thorough diagnosis. The failure of cults is due to the fact that they use the same treatment for all diseases, making no effort to differentiate one from another.

The first principle of psychotherapy, the author explains, is re-education, claiming that to have any form of mental disease a certain amount of "education" is necessary. A second important principle is readjustment to environment. The tenor of Dr. Yoder's paper is the value of mental hygiene, important as a prophylactic, as vaccination in the prevention of smallpox.

The essayist concludes by calling attention to the dearth of institutions set apart for the care of mental patients. We have stressed the need editorially of specialized education for the general practitioner following the line of mental hygiene. From the very intimate contact formed with his families the physician in general practice is in a better position to treat these cases early than is the specialist who sees them only in their later and often incurable stages.

* * *

Dr. Marshall's discussion of medicinal therapeutics contains many interesting suggestions. There is no question but this has been a very much neglected subject in the colleges and many of us have had to work out our drug therapeutics in the school of experience. The speaker assumes a rational drug therapy. He deals in a brief way with the long known specifics: quinine for malaria; mercury for syphilis. Then there are the near specifics such as insulin in diabetes mellitis; liver extract in pernicious anemia; pernicious vomiting of pregnancy by the use of intravenous dextrose solutions. Again drugs fill a useful role in the treatment of disordered function. The importance of correcting these disturbances consists in the possibility of breaking into the vicious circle of disease so that the correction of an auricular fibrillation may cure a dyspepsia due to a congested portal system. The iodine treatment of exophthalmic goitre particularly as an adjuvant in rendering advanced cases operable with the minimum risk, has been well emphasized.

The past decade has seen a great improvement in the use of digitalis in myocardial disease with or without valvular involvement. Marshall quotes Withering's (1785) advice as to proper administration of digitalis, "Let the drug be given in doses from one to three grains of the powder, twice a day. Let it be continued until it acts either on the stomach, pulse or bowels. Let it be stopped on the first appearance of these effects."

The importance of sedative medication is stressed in such conditions as essential hypertension and in those dyspepsias which appear to be the expression of a disordered nervous system. The writer defends symptomatic treatment on the ground that subjective symptoms may become so exhausting as to hinder recovery; pain or insomnia can serve no useful purpose. Hypnotics are rightly advocated only as a last resort. Finally in the assuredly hopeless case Marshall advocates keeping the patient comfortable. In such cases opium is indicated to the extent demanded by the symptoms present.

PROGRESS AND POVERTY

The Wayne County Medical Bulletin contains some impressive statistics in regard to the appropriations for charity in Wayne County alone for a year. The Community Fund asked for $3,000,000; the Department of Health asked last year approximately $4,000,000 and the Department of Public Welfare for Detroit another $4,000,000 making the huge sum of $11,000,000. According to W. J. Norton Secretary of the Detroit Community Fund, community chests alone in the United States last year raised $75,000,000. This sum did not include money appropriated to public welfare

out of municipal treasuries. Not included in the sum collected in Wayne County is the amount of time that physicians of Wayne County gave without which a goodly portion of the money given to charity would be of little avail. Without them the clinics could not carry on. As a class the medical profession has assumed rather a larger share in this charity obligation than their comparative numbers would warrant.

Peculiar as it may seem, along with great wealth we have associated great poverty. Henry George, 50 years ago, coined the expression "Progress and Poverty" as the title to his memorable book which has had a tremendous sale since its publication. Henry George's contention is truer today than it was half a century ago when the greater part of the population was rural and in closer contact with the source of maintenance. It is said that at present those with incomes of $10,000 and upward number only two-thirds per cent of the whole population; only 6 per cent have incomes of $3,000 and 14 per cent are in the $2,000 class. This means that 86 per cent of the people have incomes less than $2,000 a year. Through high pressure salesmanship and the moving picture theaters and other ways of absorbing incomes many of these small incomes are spent before they are earned, leaving no provision for emergencies to which category illness belongs. So while the medical profession has nothing to say in regard to the distribution of moneys appropriated we cannot but be greatly interested in charity as a social problem. Broadly speaking while charity may evoke generous responses on the part of the giver, the increasing necessity for it indicates something wrong with our social and industrial life.

We have heard a lot about the so-called "dole" system of England. This is not such an evil as it seems from this distance. It partakes more of the nature of unemploymen insurance to which both employer and employe contribute from their earnings when actively engaged at work. From the sum the employe draws when there is no work to be had. Some such scheme, profiting by the mistakes made abroad, may have to be tried here. The self respect of a great many workers would be preserved by a plan whereby in times of prosperity they could protect themselves against want. Such a plan would also reduce the amount of charity benefactions which is never a sign of healthy social conditions.

THE MEDICAL PROFESSION

"Among many important problems needing attention is the conduct of the medical profession. Able contributors have expressed the wide distrust and dissatisfaction of the people with the methods and fees of physicians and surgeons. The most noticeable and regrettable result of this is that a large part of us do not consult a doctor till we are down and out. The burden of all health articles in the press is, 'Don't try to treat yourself. Don't go to a quack. Consult your physician.' Of course we prefer to consult a competent doctor. But how are we to know which doctors are competent? And how are we to get the money to pay exorbitant fees? Are many doctors incompetent; and are fees too high? Even the doctors say they are. I see no relief in sight from this distressing condition. The only solution is one that is opposed not only by doctors but by professional and business people generally—that is, that doctors should be selected and employed by the State, and their advice should be as 'free' as is instruction in the public schools. Are we to be kept in our present plight by the bogy of socialism? Must we retain an outgrown custom in deference to antediluvians?"

The above is a letter to Current History, one of the New York Times publications. We have it on good authority that the average gross income of physicians in one of the largest American cities is $6,000 a year. This means that a great many physicians take in a great deal less than this amount. It is only too evident to those within the ranks of the medical profession that the remuneration they receive is not only not exorbitant but scarcely enough to make ends meet. And yet the sentiment expressed in this letter is becoming general all over the country, due largely to the disposition to associate the entire expense of illness such as hospital charges and the loss of income during illness and convalescence, with the attendant physician.

STILL THEY SEEK ADMISSION

The profession of medicine continues to be very attractive to those on the outside. Not that it is not attractive from the inside, however, but the present comment is directed toward the impression the medical profession makes on the outsider. And this is shown to no better advantage than the eagerness with which qualified young men seek to enter it. The total enrollment in the under-graduate department of the University of Michigan Medical School, Ann Arbor, is 637. The freshman class numbers 160, seventy-five of whom have either the B. A. or B. Sc. degree on entering, and a large percentage, probably the remainder, will have their B. Sc. degree before graduating. At the University nearly a thousand applications were actu-

ally filed for admission in the freshman class; only 160 were accepted.

The total enrollment in the Detroit College of Medicine and Surgery for the current year is 330, ninety-three of whom are freshmen. Six hundred students "from all over creation" sought admission according to a report by the Dean. The number actually accepted was less than 16% of those who sought the privilege of studying medicine in Detroit. About one-half of the registered students in Detroit, 146 to be exact, have academic degrees; 109 Bachelors of Arts and 37 Bachelors of Science. The remaining number have definite arrangements with the literary schools from which they came, whereby they will receive an academic degree upon the successful completion of one college year in medicine. There are 967 students pursuing their medical education at the present time in this State and all have met the stringent requirements demanded of them.

The profession of medicine seems to be the most popular. There would be a reason for this if medicine were characterized by its old-time independence. The long pre-medical training, together with the four year medical course and the one or two year hospital internship, renders economic independence an impossibility for at least ten years after entering college, presupposing that the candidate enter upon medical practice free of debt.

The cost of medical education, however, appears to be mounting. For the year 1926-27, according to the supplement of the third report of the commission on medical education, the average cost of medical training was about $704.00 per year per student. The average student's fees paid was $254.00 leaving $450.00 to be made up by the State in the case of State schools or by endowment in the independent institions. This does not of course represent the total cost to the student who must take care of such items as board and room, instruments, books as well as special laboratory and other fees.

When he gets out he finds that he has no small financial investment in addition to his time and effort which cannot be accurately computed in dollars. He feels that he must realize at once on his investment and accordingly grasps at the nearest prospect which is apt to be a small salaried position. And so the problem of supplying smaller municipalities with adequate medical service becomes increasingly difficult so far as a solution is concerned.

THE BEAUMONT LECTURES

The Beaumont Lecture Committee of the Wayne County Medical Society have procured a lecturer for 1930. The approximate dates are the 27th and 28th of January. The series consists of three lectures, the first given on Monday night and the second Tuesday from eleven o'clock to twelve o'clock, and the third Tuesday evening. As we have had occasion to explain before, the Beaumont lectureship grew out of a fund set aside during the war by a number of members of the Wayne County Medical Society. The income has been sufficient to reimburse the lecturer each year, as well as to defray the cost of publication of the series. The coming lecture will be the ninth in the series. The subject is of a basic nature pertaining to the medical sciences in the broadest possible way. In several instances the lecturer has made the occasion the opportunity of presenting for the first time the results of research upon which he had been engaged.

The lecturer for 1930 will be Dr. Thomas Wingate Todd, Professor of anatomy of the Western Reserve University, Cleveland. Dr. Todd is one of the leading anatomists of this country. He was born in Sheffield, England in 1885 and educated at Manchester University. He has been professor of anatomy at the Western Reserve University since 1912. Dr. Todd has done original work within recent years on the anatomy of the gastro-intestinal tract. He has appeared in Detroit several times and has been accorded a good audience each time. He is not only a clear and forceful speaker but has the rare quality in a speaker of possessing appropriate humor. An invitation is extended to members of the Michigan State Medical Society, wherever they may be located, to attend these lectures.

MEDICAL OPPORTUNITIES IN CHICAGO

Doctors in Chicago are in revolt against the tradition which forbids open advertising to their profession, and the Chicago Medical Society has just issued a manifesto defining the sort of advertisements that it thinks should be permitted. It is difficult to see why any kind of touting for customers should be necessary. Surely the only thing to do is to sit down like a gentleman and wait for the next bomb to blow a few perfectly good patients into the nearest consulting-room.—Manchester Guardian.

FIRST MICHIGAN TERRITORIAL MEDICAL SOCIETY

In the custody of the medical library department of the Detroit Public Library is a volume in manuscript which is at least one hundred and nine years old. It is thirteen inches long by eight inches wide by one inch thick, board cover with leather back. It shows evidence of both its age as well as years of careful use. The handwriting is very legible, written at a time when writers wrote with "miser care." The ink is faded to a rich brown. Title of the volume, written in a bold hand, is "Laws and Ordinances of the Medical Society of the Territory of Michigan." The text occupies seven pages closely written, concluding with copies of the signatures of Lewis Cass, Governor, A. B. Woodward and John Griffin, both judges of the Territory of Michigan. The Territorial Medical Society was organized at Detroit January 11th, 1820. The articles of organization bear the signatures, copies of which are presented here, of William Brown, Stephen C. Henry, John L. Whiting, R. S. Rice, E. Hurd, William Thompson, Harry Conant, Marshall Chapin, Cyril Nichol, Amasa Hemenger, A. Edwards, Zina Pitcher, Ezra Parke, William Witteredge, David E. Lord, J. C. Davis, Justin Rice, C. W. Reid Webb, Henry Bradley, Ephraim Adams, Thaddeus Thompson, Lyman T. Penny, Thomas B. Clark, H. Loomis, John Hendrie, John Drake, Sterling W. Allen, Dennis Cooley, C. McCollum, David L. Porter, Douglass Houghton and Robert McMillan.

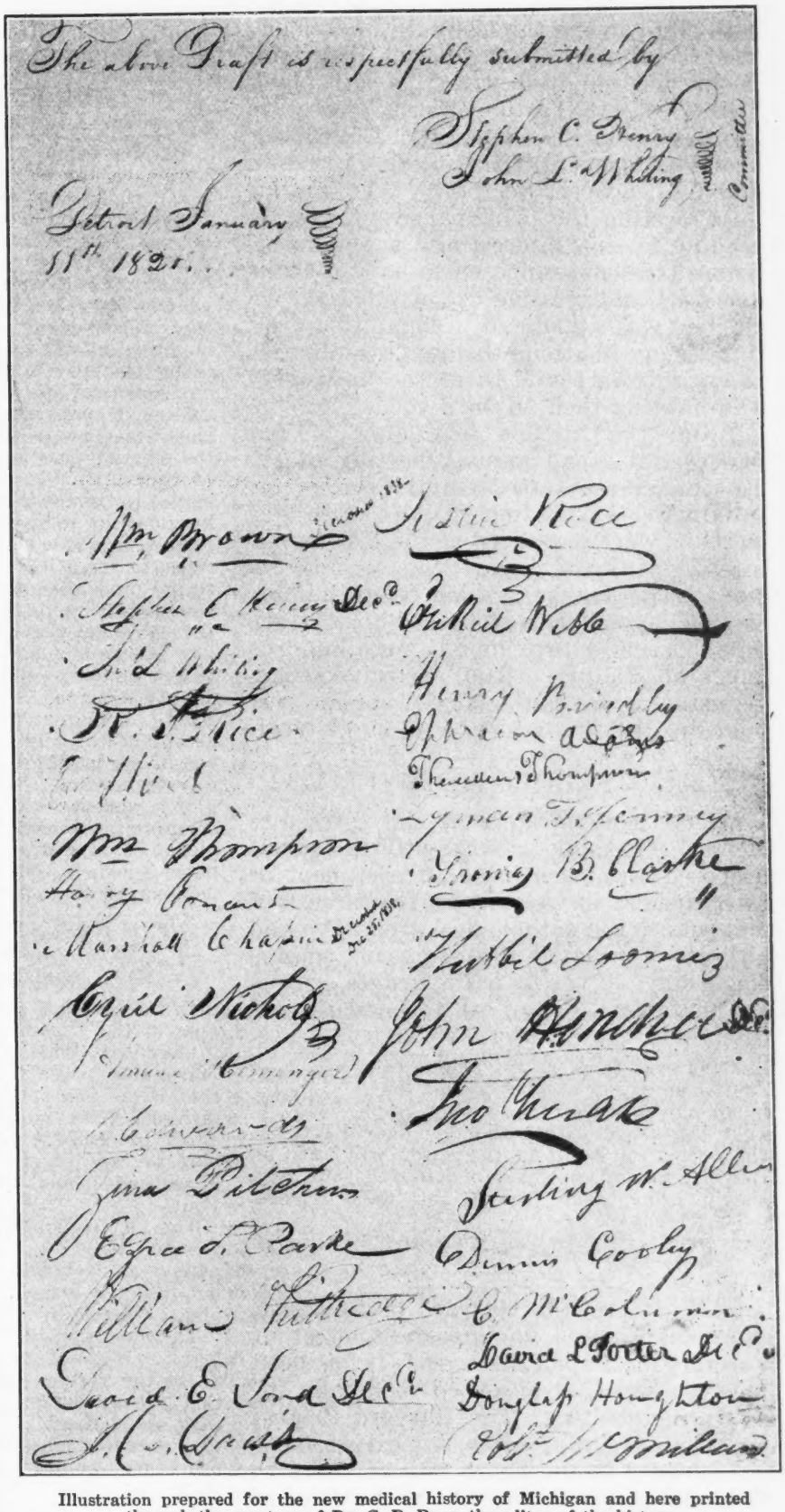

Illustration prepared for the new medical history of Michigan and here printed through the courtesy of Dr. C. B. Burr, the editor of the history.

This book served as a record of the minutes of the annual meeting to January

14th, 1851, when the last entry was made. The remainder of the book, comprising about one hundred pages, is left blank. This year (1851) the officers were: Dr. Zina Pitcher, President; Dr. J. Paddock, Vice-President; Dr. R. L. Rice, Treasurer, and I. B. Scovell, Secretary. At this annual meeting the principal event was the reading of an "interesting" paper on delirium tremens, supposed to have been induced by an excessive use of tobacco. Dr. Pitcher was appointed a committee from this society to attend the next examination of candidates for M.D. at the university. The meeting then adjourned.

From the humble beginning of one paper read at an annual meeting of the Territorial or State Medical Society, approximately sixty-four papers with discussions were presented at the last annual meeting of the Michigan State Medical Society. The Journal, which began humbly in 1901, as will be seen by the present volume, attains approximately nine hundred pages of reading matter exclusive of advertising, which is the largest volume ever published by this society in a single year.

MAGGOTS AND OSTEOMYELITIS

One of the speakers at the Interstate Medical Assembly held recently in Detroit proposed a novel method of treatment of osteomyelitis by permitting free access of maggots to the pathological area. We had hitherto associated the aforesaid embryologic stage of the fly with "graves, worms and epitaphs." They call to mind the old rhyme:

Did you ever think as the hearse rolls by,
That some day or other you must die?
In an old churchyard in a tiny lot
Your bones will wither and then they'll rot,
The worms will crawl up, the worms will crawl in,
They'll crawl all over your mouth and your chin,
They'll bring their friends and their friends' friends too,
And you'll look like hell when they're through with you.

R. M. Moore, the Harvard physiologist, has demonstrated an important effect of a protein meal upon the heart. It has been long realized that absorbed foodstuffs increase metabolism. The Harvard Professor estimates that after a meal of meat the increase in the heart rate amounts to 25 to 50 per cent rise above the fasting level. A protein meal throws an extra burden on the heart amounting to the heart's total performance during three or four hours under fasting conditions. This probably accounts for the fact that singers prefer to perform with the stomach empty and will explain also the mediocre after dinner speech.

THE BLOOD AS A TISSUE

(Professor A. E. Boycott in the London Lancet.)

Besides being a carrier of food, excreta, and hormones, the blood is a tissue. As such it has a life of its own, malformations (e. g., acholuric jaundice) and tumours (e. g., leukaemia, splenomegalic polycythaemia), and can be studied for itself. There being no name for the total quantity of red corpuscles with the marrow cells from which they come, he suggested the word "erythron" as convenient. Hypertrophy of the erythron is caused by relative lack of oxygen whether this is due to high altitudes (anoxic type of Barcroft) or slowness of circulation (stagnant type), though in many cases of heart disease the associated increase in viscosity would be harmful and the reaction does not occur. Similar active growth (regeneration) in anemia is also due to anoxaemia (anaemic type). Atrophy of the erythron is caused by relative excess of oxygen as in compressed air, persons returning from high altitudes to sea-level, and after transfusion. Hypertrophy and atrophy are both conditioned by the needs of the animal; similar conditioned responses (atrophy and regeneration) in the liver and kidney in mammals, in the claws of prawn, and in the tentacles of a worm were considered. In all cases the result has the appearance of a purposive action, and it was urged that a frank acceptance of a teleological outlook made pathology more intelligible and formed a sound guide in investigation. The normal quantity of haemoglobin and its concentration in the blood is a compromise between the desirability of having plenty of oxygen and the disadvantage of having blood which is too viscous, the best balance depending on the rate of the circulation.

THE NEW STERILIZATION LAW OF MICHIGAN

H. E. Randall, M.D., Flint, Michigan

In the last half century cases of feeble-mindedness in the United States have at least doubled in number. The legislatures of various states (22 states) cognizant of the increasing cost of the care and maintenance of the mentally diseased, have passed Sterilization Laws in an effort to decrease the propagation of those unable to care for themselves. Sterilization laws have been upheld by the United States Supreme Courts.

The last legislature of Michigan passed a new Sterilization Law. The law defines a defective person as including not only all feeble-minded, but also the insane, epileptic, moral degenerates and sex perverts.

The operation of Sterilization can now be done legally in these cases either by a court order as in the former law, and by consent provided that the guardian and nearest of kin also sign with the patient. This means three signatures to a written consent. The third method is the procedure required to sterilize an inmate in a state institution. Here the medical superintendent of a state institution certifies that the patient is a mentally defective person and recommends that such person be sterilized to the governing body and to the state Welfare Commission who after investigation, must either obtain a written consent as in the second method, or file a petition in the probate court for an order of Sterilization.

THE EDITOR'S EASY CHAIR

PROGRESS AND MEDICINE

This title is suggested by Christopher Dawson's recent book Progress and Religion in which the author declares that the doctrine of progress was first clearly formulated by the Abbe de St. Pierre after the close of the war of the Spanish Succession (1713 the date of the Treaty of Utrecht) when he conducted propaganda for the formation of a tribunal which should eliminate all future wars in Europe. For over two centuries it has dominated the European mind to such an extent that any attempt to question it would have been regarded as rank heresy. Up to the end of the sixteenth century what we now understand by the term progress had very little meaning. Society was to a large extent static. Some very cultured people are inclined to think that we lay too much stress on what we call progress. Listen to Count Keyserling.* "The earth existed for millions of years before man began to be a nuisance on it, man has remained essentially a child of the earth, even though he rules it. This is true in any case, in the sense that there is no lasting happiness for man unless he is in harmony with its rythm. And this means that the only state which can endure is a comparatively static state."

We can hardly conceive what the absence of modern transportation falicities meant. Even much less than two centuries ago transportation was confined to muscle-drawn vehicles and to sail boats and as a consequence the great majority of people travelled but little or not at all. The means of locomotion were so primitive and the roads so abominable that provincial differences in speech and customs prevailed almost universally. The printing press, improvements in transportation and lastly the telegraph and radio are the great factors which tend to promote uniformity and with it progress.

Probably there was no time, however, in the history of mankind when change was wholly absent. When we speak of society as being static we do not mean a condition of stable equilibrium.

"The past has flown away,
The coming month and year do not exist;
Ours only is the present's tiny point,
Time is but a fancied dot ever moving on
Which you have called a flowing river stream."

Change is a characteristic of life itself. We are always undergoing a stage of transition but the movement varies, now slow, now fast. It must have been somewhat accelerated during the time of the ancient Greek poet who wrote that "Zeus is dethroned and Whirl is King." The period mentioned, namely, the seventeenth century, was one of voyaging and colonization which without doubt hastened change.

PROGRESS AN ADVANCE TO BETTER THINGS

Everyone would wish to define the term progress as an advancement to better things or as Dawson says: "The doctrine of progress in the full sense must involve the belief that every day and in every way the world grows better and better."

Scientific discoveries aid in the production of other discoveries. No man liveth unto himself. He reaps not only what those who have gone before him have sown, but whatever he transmits to posterity is what he has received and transformed. Roger Bacon, the lone star of the thirteenth century, was a helpless and unpopular victim of the prejudice of his age and was as powerless as Newton would have been had his lot been cast four centuries earlier. Progress is possible only when the lot of genius is cast in an appreciative age. The soil must be prepared but as soon as the material benefits of discovery and invention are evident the age of appreciation soon follows. Even as I write, a huge celebration is being held in Detroit in honor of Thomas Edison who has made many practical applications of electricity, while the work of Faraday and Clerk Maxwell is either forgotten or has never been known to the masses.

During the so-called dark ages very little of what we call progress today occurred and none of which the inhabitants of the time were conscious. They were content to look to the past, to Galen in medicine and to Aristotle in philosophy. And yet before the Reformation the people were evidently both numerous and contented. One cannot but be impressed in travelling in Europe with the huge cathedrals and castles, many in ruins, which were costly to build, requiring many men to erect them. There is evidence that many of the European countries must have been nearly as populous as today, and considering the fact that communication and transportation were almost wholly lacking, the countries must have been capable of producing each its own food supply. (Regarding communication, as late as 1815 it took four days for the news of the victory over Napoleon at Waterloo to reach London. The battle was fought June 18th and the first account appeared in the London Times June 22nd.)

THE NEW BIRTH OF ANATOMY

The scientific revival about the fifteenth century resulted in a new interest in anatomy. Dissection came to be more widely practised though it was not until one hundred years later that Galen's views were openly discussed and criticized in the universities. Some of the earliest workers in anatomy, however, were really not anatomists at all but artists who realized that a knowledge of bones and muscles was needed for their art. Such as Michaelangelo, Raphael and the Greatest of all Leonardo da Vinci (1452-1518). According to the British Medical historian Singer, da Vinci's achievements in science were as remarkable as his works of art. The first anatomical text book the result of direct observation, was by Andreas Vesalius of Brussels (1514-1564). This was the Fabric of the Human Body (1543) a landmark in the History of Science styled by Singer "the first great positive achievement of science in modern times." The immediate effect of the new knowledge was an improvement in surgery particularly that of the army surgeons who had ample opportunity to apply their knowledge during the fierce and prolonged religious wars of the sixteenth and seventeenth centuries. The most prominent of these surgeons to reap the benefit of the anatomical work of Vesalius was Ambroise Pare (1517-90). Pare did much to advance surgery from the crude handicraft of the barber surgeon.

As yet there was no science of Internal Medicine inasmuch as up to and for some time following Vesalius' work there was no scientific physiology. The idea of "the four humors" per-

* Atlantic Monthly, November, 1929.

sisted. The founder of modern Internal Medicine was William Harvey** (1578-1657). Following his work we have that of the English Hippocrates, Thomas Sydenham, "The Method of Treating Fevers" (1666). As great activity was manifest in other fields, such as physics and astronomy, so that the seventeenth century opened with a great wealth of scientific discovery, each especially chemistry, physics, botany and biology supplementing and assisting one another. The names of workers in the various fields of experimentation and scientific thought of the seventeenth century would form no inconsiderable catalogue.

THE MICROSCOPE AND MINUTE ANATOMY

Notable is the fact that the compound microscope first made into an effective instrument by Galileo (1564-1642) preceded the work of the minute anatomist Malpighi (1628-94). Contemporary with Malpighi was also the Dutch microscopist van Leenwenhoek (1632-1723).

Singer† describes the period from about 1700 to 1825 as that of consolidation. "During the sixteenth and seventeenth centuries the human mind cast off its medieval vestments, and having refreshed itself at the spring of antiquity turned to array itself in the garments of the new philosophy. The advent of new ideas and new knowledge had been determined by Galileo at the beginning of the seventeenth century. The meaning of Research was determined by a second great investigator, Newton, at the end of the same century."

NEWTON AND THE SCIENTIFIC METHOD

Above all things Newton was most responsible for ushering in the age of the Reign of Law. The laws of nature are as much within us as without. The previous age or period was one of vast accumulation of knowledge along diverse lines. The period from 1700 witnessed order reduced from the scientific chaos. The progress of any science is not to be measured, however, by the quantity of observations accumulated by its votaries but by the degree it succeeds in bringing the numerous observations under general laws. The nineteenth and twentieth centuries have witnessed great advances in all sciences and the genuine observations of all have been reduced for the most part to definite laws. We see this in chemistry, in physics, less apparent perhaps in biology, and all have imparted this order to medicine which is also an art as well as a science. So medicine has undergone real progress accelerated by the ancillary sciences of the past fifty years together with the fact that communication all over the world is all but instantaneous, if necessary. Medical science knows no national boundaries. Its tested facts are the property of the entire world. With apologies to Kipling:

> There is neither East or West,
> Border nor breed nor birth,
> When two medical men stand face to face
> Though they come from the ends of the earth.

Whatever may be said of progress in general by such men as Keyserling or Bertrand Russell there is no question but that progress in the medical sciences has been for the betterment of mankind.

**The work of Harvey has been dealt with at length, see Vols. XXVII, XXVIII of the Journal of the Michigan State Medical Society which contains a complete revision of the chapter on Harvey in my book Pathfinders of Physiology (1914) including the tercentenary celebration of Harvey's great work De Motu Cordis.

† A Short History of Medicine. Charles Singer, Oxford University Press.

NEWS AND ANNOUNCEMENTS

Thereby Forming Historical Records

The Annual Conference of State Secretaries, including also the Editors of State Medical Journals, was held in Chicago at the American Medical Association headquarters on November 15th and 16th.

Among the high lights of the Inter-State Post-Graduate Congress was the presentation of a medal to Thomas A. Edison in recognition of his services to the world, and to Henry Ford, Honorary membership in the Association, as a mark of appreciation of his services to medical science.

Twenty-four hospitals in and around Detroit have been placed on the list of fully improved institutions for the coming year by the American College of Surgeons at the opening session of the 12th Annual Standardization Conference of the organization at its recent meeting in Chicago.

As this Journal goes to press news has been received of the death of Dr. V. C. Vaughan, for many years Dean of the Medical Department of the University of Michigan. In the January or February number of The Journal will appear an article on the life and work of Dr. Vaughan.

The East Side Physicians Association of Detroit, Michigan, was addressed by Dr. Harrison S. Collisi of Grand Rapids, October 31st, at the Michigan Mutual Hospital on the subject of "Civic and Industrial Relations." Dr. Grove C. Penberthy of Detroit supplied the clinical part of the program.

Dr. B. R. Hoobler of Detroit who has recently returned from a ten months' travel voyage around the world, gave an illustrated address before the Wayne County Medical Society on the evening of October 29th. Dr. Hoobler's address was illustrated by several reels of moving pictures, illustrating scenes in Africa and Asia.

Dr. Angus McLean of Detroit delivered an address before the Polish Medical and Dental Association at its convention held recently in Detroit. His subject was "Medicine as Taught in the Universities of Cracow and Warsaw." One of the famous students of Cracow was Copernicus who first studied medicine and afterwards astronomy. Dr. McLean visited both universities during his visit to Poland in 1927.

Dr. James T. Case, connected with the Battle Creek Sanitarium for the past twenty-five years as roentgenologist and surgeon, has entered practice in Chicago in connection with the Evanston Hospital, and the new Passavant Memorial Hospital, and will continue his professorship of roentgenology at the Northwestern University. He will continue his connection with the Sanitarium as visiting surgeon. — Bulletin Calhoun County Medical Society.

At the Eighty-Fifth Annual Meeting of the Northwestern Ohio Medical Association which met at Findlay, Ohio, October 8th, addresses were

made by the following members of the Michigan State Medical Society: The Relationship Between Certain Allergic Manifestations and the Endocrine System, Dr. Carleton J. Marinus, Detroit; Lesions of the Face and Oral Mucous Membrane, Dr. George H. Belote, Assistant Professor of Dermatology and Syphilology, University of Michigan; The Management of Ano-Rectal Fistula, L. J. Hirschman, M. D., Detroit, immediate past President of the Michigan State Medical Society.

Dr. C. S. Gorsline, president of the Michigan Association of Industrial Physicians and Surgeons, in a letter to members of that organization, reports some results of the enthusiastic meeting held at Jackson in conjunction with the annual meeting of the State Medical Society. With the letter goes a questionnaire for suggestions and recommendations as to the subjects and methods that should be considered in efforts toward solution of the various industrial health problems. Dr. Gorsline also invites all members of local medical societies, who may wish to affiliate with the industrial physicians association, to communicate with the secretary.

The employees of the Mueller Brass Company of Port Huron have presented the sum of $18,000 to the project of the erection of a new hospital for the city of Port Huron. This sum was the accumulation of the employees towards a mutual aid society. The Mueller Brass Company has taken out a group insurance policy covering their employees for life, accident and sickness. On hearing of the action of his employees Mr. O. B. Mueller, President of the company added the sum of $32,000 as the donation of his company to this fund. In the near future a campaign will be undertaken in Port Huron for the sum of $500,000 for the erection of an up-to-date hospital.

The National Committee on the Cost of Medical Care will shortly carry on an investigation of the medical situation in Detroit. Detroit being one of the largest purely industrial cities on the continent the findings will be of great interest to the profession of the whole state as well as the profession of Wayne County. A committee has been appointed by the council of the Wayne County Medical Society to co-operate with the investigator, Dr. N. Sinai. Dr. Sinai is already known to many members of the medical profession of Wayne County and the state as he has worked under Dr. Henderson in connection with the joint committee on public health education. He is a man in whom all factors concerned in the investigation may place the fullest confidence.

"The next meeting of the Radiological Society of North America will be held at Toronto, December 2nd to 6th, inclusive. Headquarters at the Royal York Hotel. The facilities and accommodations at this hotel are the best in the history of the Society and we expect to have a banner meeting in every way. The Scientific Program, Clinics, Scientific and Commercial Exhibits will be of the highest character and exceedingly interesting and instructive. The program will be interesting not only to the radiologists, but to the physicians practicing other medical specialties and general practice as well. A cordial invitation is extended to all physicians as well as radiologists to attend the Toronto meeting. Secure reservations at once through Dr. W. C. Kruger or Dr. G. R. Reid, 20 College Street, Toronto, Canada. Excellent arrangements have been made to take care of the visiting ladies."

PROGRAM

of the

FOURTH ANNUAL CLINIC

of the

HIGHLAND PARK PHYSICIANS CLUB

at

HIGHLAND PARK GENERAL HOSPITAL

Thursday, December 5, 1929

8:00 Weekly Clinical Pathological Conference, Highland Park General Hospital.

8:40 Address: "Focal Infections."
Joshua G. R. Manwarring, M.D., F.A.C.S., Director General Surgery Hurley Hospital, Flint, Michigan.

9:20 Address: "Physical Agents in the Commoner Affections of the Skin and Accessible Mucous Membranes." Illustrated with lantern slides.
Edwin N. Kime, M. D., Department of Medicine, Director of Physical Therapeutics, University of Indiana, Indianapolis, Indiana.

10:00 Address: "The Economic and Physical Advantages of Gynoplastic Repairs after Delivery." Illustrated.
Jacob L. Bubis, M.D., F.A.C.S., Associate in Obstetrics, Senior Assistant, Gynecology and Surgery, Mt. Sinai Hospital, Cleveland, Ohio.

10:40 Diagnostic Clinic. (Cardio-Vascular-Renal Problems).
George C. Hale, M. D., Dean and Professor of Medicine, University of Western Ontario, London, Ontario, Canada.

11:20 Diagnostic Clinic. (Thyroid).
Andre Crotti, M.D., F.A.C.S., Professor of Clinical Surgery, Ohio State University, Columbus, Ohio.

12:00 Address: "Cardiac Decompensation."
Charles S. Williamson, M. D., Professor of Medicine, University of Illinois, Chicago, Illinois.

1:00 Noon Intermission. Complimentary lunch in Hospital Dining Room.

2:00 Address: "The Prophylaxis and Treatment of Some of the Infectious Diseases of Childhood."
Isaac A. Abt, M. D., Professor of Pediatrics, Northwestern University Medical School, Chicago, Illinois.

2:40 Diagnostic Clinic. (Childhood Limps).
George A. Ramsay, M.D., F.A.C.S. Professor of Surgery, Western University Faculty of Medicine, Orthopedic Surgeon to St. Joseph's Hospital, London, Ontario, Canada.

3:20 Address: "The Conservative Treatment of Compound Fractures." Illustrated with lantern slides.
Walter G. Stern, M.D., F.A.C.S., Chairman, section on orthopedic surgery, American Medical Association, Cleveland, Ohio.

4:00 Address: "Management of Eclamptogenic Toxemia."
Frederick H. Falls, M.D., M.S., B.S., Pro-

fessor of Obstetrics and Gynecology and Head of Department, University of Illinois, Chicago, Illinois.

4:40 Address: "Etiology and Treatment of Pregnancy Toxemias." Illustrated.
Paul Titus, M.D., F.A.C.S., Obstetrician and Gynecologist St. Margaret Memorial Hospital, Pittsburgh, Pennsylvania.

5:20 Diagnostic Clinic: (Stomach and Gallbladder).
Chas. Phillip Emerson, M. D., Dean and Professor of Medicine, Indiana Medical School, Indianapolis, Indiana.

6:30 Dinner: Masonic Temple, Highland Park, Michigan. (Ladies invited).
Invocation:
Chas. Stanley Jones, Pastor Congregational Church, Highland Park, Michigan.
Address of Welcome:
Hon. John C. Shields, Mayor, Highland Park, Michigan.
Address: "Fundamental Americanism."
Mr. Gus W. Dyer, the outstanding orator of the middlewest, Vanderbilt University, Nashville, Tennessee.
Music: Ray Swartzbaugh, conducting.

DEATHS

Dr. M. J. Spranger

Dr. Spranger of Detroit, died on October 24th, at the ripe age of 84 years. The deceased was born in Munich and moved to the United States, the family settling in Pittsburgh in 1849. Later the son graduated from the Cleveland Homeopathic College and also the Detroit Homeopathic College. He had practised in Detroit continuously since 1877.

Dr. Thomas W. White

Dr. White of Detroit, died October 2nd, 1929, at 7834 Van Dyke Place. Dr. White was born in Richmond, Va., 1884. His university work began at the Virginia Military Institute as a member of the class of 1903 (chemistry). In 1910 he graduated from the University of Louisville in Medicine. Following his graduation he served two years in the Willard Parker and Children's Hospitals, New York, during which time he worked under the late Dr. Holt. He has practiced for the past 14 years in Detroit, specializing in pediatrics. Dr. White had a wide and influential circle of friends, he was an active member of the Detroit Country Club, Detroit Club, Indian Village Club and University Club. He is survived by his widow, Mrs. Lucy White, one brother, Mr. G. G. White and three sisters, Mrs. A. P. Wilmer, Mrs. Marvin Gorham and Mrs. J. C. Carpenter.

From the Wayne County Medical Bulletin.—

Dr. Florence Chadwick

Dr. Florence Chadwick died October 31, 1929 at her home in Bridgewater, Connecticut, following an illness of several months. Dr. Chadwick was born in Massachusetts on November 13, 1878 and received her early education in the Boston schools. She was graduated from the University of Michigan Medical School in 1912; spent her interne year in the New England Hospital for Women and Children; and later was resident physician at the Woman's Hospital, Detroit, Michigan. Following this she established her office in Detroit and practiced there for the last 16 years. Dr. Chadwick was a member of Sigma XI, and Alpha Omega Alpha, honorary scientific fraternities; of Alpha Epsilon Iota, Medical Sorority; was a member of the State, County and American Medical Societies; the Blackwell Medical Society of Detroit; and a Fellow of the American College of Physicians.

At the time of her death she was attending physician at the Woman's Hospital, Junior attending at the Harper Hospital Outpatient Department. She was also examining physician for the Visiting Nurse Association, for the Children's Aid Society and Consultant for women at the Highland Park High School.

In Memoriam—Mrs. Sawyer

The friends of Dr. Walter H. Sawyer are grieving with him because of the death of his wife which occurred November 6th at her home in Hillsdale.

The designation "friends" in this connection applies to all of his professional acquaintances and associates, but sorrow is especially and keenly felt by those whose privilege it had been to know the sunny, charming and accomplished Harriet Mitchell Sawyer.

She was born in Hillsdale and lived there continuously during early years and married life; was a daughter of the late Honorable Charles T. and Harriet Wing Mitchell. They were pioneers of Hillsdale County of country-wide acquaintance and influence. Mr. Mitchell was prominently identified with the social, political, eleemosynary and educational affairs of Michigan. The Mitchell name is perpetuated through many useful gifts to the City of Hillsdale, among them the Mitchell Public Library on the old homestead site, and the clock and chimes in the Court House tower.

Mrs. Sawyer was educated in the Hillsdale schools, at Brown Seminary, Auburn, N. Y., and at Miss De Janons Gramercy Park School, New York.

Benevolent, of delightful personality, with an abiding sense of humor, deeply interested in all that concerned her neighbors' welfare, she was esteemed and beloved. In church activities and every worthy local enterprise she took praiseworthy part. She was prominently identified with the Colonial Dames of America and was Past Regent of Ann Gridley Chapter, D. A. R. She was Patroness of Pi Beta Phi, held membership in the Needlework Guild and in various clubs and societies at home, in Detroit and Ann Arbor. She had active part in war work as Vice-Chairman of the Council of National Defense and Chairman of the Children of Southern France Committee of the D. A. R. She was studious, cultured, companionable, a discriminating appreciator of art, literature and music. Above all, she was a devoted mother and the adorable grandmother of two promising boys, sons of Thomas Mitchell and Ruth Fisher Sawyer.

She bore invalidism cheerfully and uncomplainingly for many years and rarely if ever permitted this to interfere with the exigent duties which wifehood, motherhood and social position involved. Indeed, in the days just preceding her death which occurred suddenly in early morning, she had been ministering constantly to the comfort of the Doctor, himself a sufferer from a pain-

ful infection which necessitated close care and watchfulness.

Her life was complete and beautiful. Serious vicissitudes along its way were not escaped but she never lost courage in adversity and invariably exemplified charity and good will.

The Journal and its clientele extend fullest sympathy to her husband, her son and his family and to friends and relatives to whom her continued presence on earth meant so much. They would, if it were possible, lighten the blow which has fallen so heavily upon Walter, and contribute to his strength and fortitude.

—C. B. Burr.

COMMUNICATIONS

WHAT THEY SAID 50 YEARS AGO

Editor,

Journal Michigan State Medical Society: Of more than passing interest at the present moment are the following predictions and comments, discovered during research in medical history, in a journal published fifty years ago:

"Edison believes he will yet be able, by passing an electric burner into the stomach, to illuminate the interior of the body." (1879)

"Edison, having failed, at least not having succeeded, in perfecting his electric light, has turned his attention to quackery, and is said to have invented a specific for rheumatism, which will probably soon take the place of St. Jacob's Oil on our fences and dead walls. He is also reported to have discovered a new anesthetic. There is nothing like medicine as a field for the display of genius." (1880)

"The excitement following the announcement that Mr. Edison had discovered a method of dividing the current so as to make electricity available as a light for domestic use subsided as soon as the first effort of that gentleman to reduce his theory to practice proved a failure." (1880)

Verily the ways of journalism—medical and lay —are often past finding out.

C. B. BURR.

November 21, 1929.

Michigan State Medical Society,
Grand Rapids, Mich.

I am beginning to receive comments from insurance companies on the action taken by the State Society, embodied in the resolutions. To date the majority of comments are favorable. There are a few that bring up some interesting questions.

1. That it seems unusual for one state medical society to take such action when the societies in other states have not done so. (Michigan has begun what the other states will do in the future.)

2. That the applicant, and not the insurance company, is responsible for the payment of any fee for filling out claim proofs. (This is quite true, but in any event physicians should use their judgment in charging either the applicant or insurance company. If the information is requested by the insurance company, they should pay for it; if requested by the applicant, then he should pay for it. It is quite likely that certain of the insurance companies will reimburse the applicant or pay the physician direct for these reports, and, of course, will ultimately get the most business. The other insurance companies will have to fall in line in order to compete with companies providing fees. Physicians should be notified of this situation.)

3. That the study made by the Civic and Industrial Relations Committee represents only one side of the question because the physicians haven't consulted the medical executives of the insurance companies. (Possibly it does not occur to the insurance companies that physicians have a right to charge for services rendered to any individual, company or organization, and that our own conclusions drawn in this matter really are the privileges of the physicians. However, the committee has endeavored to be fair by making an unprejudiced study of the situation from information received from the insurance companies.)

4. That insurance companies desire further information as to the personnel of the committee.

5. That insurance companies feel that the matter should have been taken up with the State Insurance Department. (The committee feels this is again the privilege of the physician to charge for any service rendered.)

6. That some insurance companies are inclined to look upon the whole proposition with considerable degree of criticism.

These are just some of the reactions that I have gained from the replies received and while I do not care to have the letter published in the Journal, would it not be a good idea for you to embody these things in a communication which can be published in the State Journal?

Further, after talking with Dr. Corbus, we feel that each county society should receive a communication from you, as State Secretary, calling attention to the resolutions and the action taken, specifically requesting county secretaries to inform their members and ask them to stand by the resolutions, for if the individual physicians do not exercise their rights relative thereto, the insurance companies will naturally wonder why one physician is charging when another is not. This matter is too important to let it pass by without unified action on the part of physicians.

Again let me state that I do not wish to have this letter published. I am only giving you the information so that it may be passed on to the profession at large in the proper form of communication.

Very sincerely,
Harrison S. Collisi,
Chairman, Committee on
Civic and Industrial Relations.

Houghton, Mich., October 31, 1929.

Dear Dr. Warnshuis:

We recently had the conference sent by the State Medical Society at Houghton, Mich., at which time Dr. O'Donnell, Dr. McKean and Dr. Richard Smith appeared. Richard Smith is always good, but I wish to especially compliment you on the choice of Doctors McKean and O'Donnell because of their wonderful presentation of their subjects with thoroughness, accuracy and dispatch. They certainly gave us the new things in their subjects, and I felt that a personal appreciation was due them and due you. It was the

consensus of opinion amongst others who were present.

Sincerely yours,
Simon Levin, M. D.

Lake Linden, Mich., November 4, 1929.

Dear Dr. Warnshuis:

I want to thank you personally for the post-graduate conference you gave our county on October 30, and wish to convey officially the thanks of our society to you for the most helpful and timely papers which were given to us.

We want to thank the doctors who so kindly gave of their time so generously in order to make these post-graduate conferences possible. Doctors Smith, O'Donnell and McKean have our deepest appreciation for their excellent papers. Dr. Smith, with many years of experience to his credit, gave us lots of food for thought. Doctors O'Donnell and McKean gave us most timely and practical papers, and we appreciate very much these young men's masterly manner of handling their subjects.

We will look forward next year to another successful conference. We had an average attendance of 21 members for the conference.

I wish to state also that the Secretary of Houghton County Medical Society will attend the County Secretaries' meeting in Chicago during January, 1930.

I remain,

Very truly,
T. P. Wickliffe, Sec'y.-Treas.

Detroit, Mich., November 6, 1929.

Dear Dr. Warnshuis:

In reading over the official minutes of the annual meeting in the last issue of the Journal, I notice on page 802 that I was credited with introducing the resolution concerning the matter of an executive secretary and likewise in the two instances following in the discussion. This resolution and the discussion which follows under my name was introduced by Dr. C. J. Barone, 26 Waverly avenue, Highland Park.

Another correction which I believe should be made in the resolution immediately preceding and introduced by Dr. Rupp in regard to service in free clinics, the last sentence as stated reads, "This shall not exclude any temporary emergency or first aid treatment." This, if I remember correctly, was put as follows: "This shall not include any temporary emergency or first aid treatment."

I believe a careful examination of the minutes will show these changes to be correct.

Yours very truly,
E. C. Baumgarten, M. D.

MICHIGAN DIPHTHERIA STUDY
1928
(Cities over 10,000 Population)

Group I is the blue ribbon group of cities in diphtheria prevention. In these cities there were NO CASES AND NO DEATHS during the entire year of 1928. Marquette, with a population of 12,000, and Traverse City, with a population of 10,000, are in the select group among the cities of the state, in respect to diphtheria prevention.

Grand Rapids, being the second largest city in the state, has a difficult problem but attained the desirable goal of no deaths from diphtheria during 1928. Grand Rapids was the largest city in the United States that had no diphtheria deaths during 1928. This distinction comes to Grand Rapids after five years of intensive and constructive work with toxin-antitoxin.

Jackson, with a population of 63,000, made a remarkable reduction in its diphtheria rates. The occurrence of one case, however, removed it from Group I. This fine record has been achieved after four years of intensive work with toxin-antitoxin.

Alpena, Monroe and Holland missed the select group because of the existence of one case in each city. These cities have given toxin-antitoxin to practically the entire school population. When the pre-school children can be reached with toxin-antitoxin, these cities will take their place in Group I.

In Group III are found cities having cases and deaths from diphtheria but with case rates lower than the rate for the entire state.

Diphtheria is an absolutely preventable disease as the record in the cities of the first two groups of cities clearly demonstrates. Physicians and health officers must work together to convince the people of this before this disease will ever be banished. When these facts are placed before intelligent people, they will become sufficiently sensitive to the occurrence of the disease that they will do their important part in its prevention.

Group IV includes Lansing, the capital city, and Detroit, the state's largest city, with four of its surrounding cities: Hamtramck, River Rouge, Wyandotte and Pontiac. The three cities having the highest diphtheria case rates were Owosso, Muskegon Heights, and Iron Mountain. These three cities are each about 10,000 in population but have used only negligible amounts of toxin-antitoxin.

Iron Mountain has the unenviable record of having the highest diphtheria case rate. This case rate is three times higher than the general rate for the state. Likewise, the diphtheria death rate in Iron Mountain was three times as high as the general rate for the state.

Detroit, the fourth largest city in the United States, made another record in "fourths" as it was fourth highest in the state in case rates (144 per 100,000 population) and fourth highest in death rates (16 per 100,000 population).

MICHIGAN DIPHTHERIA STUDY
1928
(All Cities over 10,000 Population)

Total Cases in State	3,725
Total Deaths in State	385
Case Rate	82.8 per 100,000 population
Death Rate	8.6 per 100,000 population

GROUP I. Cities with No Cases and No Deaths:

City	Population
Marquette	12,000
Traverse City	10,000

GROUP II. Cities with No Deaths:

City	Population	Cases
Grand Rapids	164,000	31
Jackson	63,000	1
Ann Arbor	19,000	4
Ironwood	15,000	2
Escanaba	13,000	6
Holland	12,000	1
Sault Ste. Marie	12,000	6
Monroe	11,000	1
Alpena	11,000	1
Ishpeming	10,000	7

GROUP III. Cities with Case Rates LOWER than Entire State:

City	Case Rate per 100,000 population	Death Rate per 100,000 population	Ratio No. of Reprtd Cases to Deaths
State	82	8	
Adrian	30	7	4
Benton Harbor	32	6	5
Highland Park	33	4	7
Kalamazoo	33	3	9
Muskegon	45	8	5
Port Huron	51	12	4
Flint	59	3	17
Battle Creek	69	2	33
Saginaw	80	4	20

GROUP IV. Cities with Case Rates HIGHER than Entire State:

City	Case Rate per 100,000 population	Death Rate per 100,000 population	Ratio No. of Reprtd Cases to Deaths
State	82	8	
Pontiac	91	8	11
Hamtramck	92	8	11
River Rouge	109	6	16
Lansing	125	1	100
Wyandotte	135	27	5
Detroit	144	16	8
Owosso	218	13	16
Muskegon Heights	250	18	13
Iron Mountain	290	24	12

FEET FOREMOST.*

Do you lack determination?
Are you short of concentration?
Are there signs of hesitation
Where there should be vim and pep?
Then accept the kind tuition
Of a Harley Street physician
And observe his admonition—
You had better watch your step.

You should let yourself be guided
by the wisdom thus provided,
Which would seem to have decided
That your brains are in your feet;
Full of stamina and starch is
He who resolutely marches
On a pair of pedal arches
All corrected and complete.

You will feel in finer fettle,
And a man of braver mettle,
When efficiency can settle
In its unsuspected roots;
Life, no longer an affliction,
Will have lost its fret and friction
With the comforting conviction
That your heart is in your boots.

So the moral is as stated—
Get your arches renovated,
Underpinned and regulated,
With the very least delay.
Are you older, balder, fatter?
Never mind—it doesn't matter;
But if once your feet get flatter
There's the deuce and all to pay!

* "Flat feet are undoubtedly the cause not only of ill-health, but of nerve-strain, lack of energy and concentration. It is impossible for anyone with a fallen arch to be 100 per cent efficient." Yet another pronouncement from the inevitable "Harley Street physician."—Manchester Guardian.

ADRENALIN DEPOTS MAY FORM UNDER SKIN

Discovery by Dr. A. B. Luckhardt of the University of Chicago and Dr. Theodore Koppanyi of Cornell University Medical College, that adrenalin forms depots when injected under the skin has opened the way for a new method of treatment of certain diseases. Adrenalin has long been used to raise the blood pressure, particularly in cases of shock following severe injuries or operations, and because of its relaxing effect on the bronchial muscles it has been used effectively in treating bronchial asthma. However, to produce the desired effect, the adrenalin had to be injected directly into a vein, and for each attack a fresh injection of adrenalin had to be made.

Drs. Luckhardt and Koppanyi have shown in dogs that adrenalin is capable of elevating the blood pressure even if injected beneath the skin, but they have also discovered the conditions under which the blood pressure elevating effect of the adrenalin injected beneath the skin may be elicited. They found that about fifteen minutes after the injection of adrenalin underneath the skin, when the injected area was gently massaged, there was at once a very considerable and protracted rise in blood pressure.

Deep anesthesia militates against the effective elicitation of this response, and this is the reason why prevous investigators failed to get blood pressure rises following adrenalin injections beneath the skin. Drs. Luckhardt and Koppanyi have pointed out that adrenalin injected beneath the skin remains there for some time, and it was even possible to produce blood pressure rises from massaging such areas which had been injected twenty-four hours before the massage.—Science Service.

INFANTILE PARALYSIS APPROACHES LOW LEVEL

The period for the lowest level of infantile paralysis cases is approaching, the U. S. Public Health Service has announced. From the first of December until the first of June about one case of the disease per 100,000 of population will occur, health officials prophesied.

During the second six months of every year, that is from June 1 to December 1, from four to fourteen cases occur per 100,000. The greatest incidence is reached in mid-September when an average of two cases in three weeks per 100,000 occurs. Ever since the big epidemic of 1916, the month of June has been the cause of special vigilance on the part of public health officers, who watch with concern a definite rise that occurs every year in June.

"The measures through which might be expected a real diminution of incidence are those which diminish human contacts in general, but the drastic closing of all places of assembly is justifiable only with a very high incidence of, say, five or ten times the usual, and even in such a case the long incubation period would make it likely that in a restricted community the actual spread of the infection had begun to diminish before the alarm was sufficient to resort to such extremes," the report stated.

Fewer cases of the disease occur in the warmer parts of the United States, but the seasonal distribution is about the same, proportionately, as it is in the North.—Science Service.

COUNTY SOCIETY ACTIVITY

Revealing Achievements and Recording Service

Frederick C. Warnshuis, M. D.
Secretary Michigan State Medical Society

SEASONAL GREETINGS

A most cordial wish for a truly Merry Christmas is extended to our members, readers and advertisers. It is a season in which joy and merryness should prevail, affording opportunity for conveying to fellowmen expressions of appreciation and friendship. The year may have had its trials and tribulations. Adverse experiences may have evidenced themselves so that at times the days were dark and friends apparently had forsaken you. And yet you carried on so that now you find the Yuletime at hand. Whatever your experiences or lot, you must indeed be woefully bereft if you cannot find here and there sufficient evidence to submerge the untoward encounters and join in on these Christmas festivities. Our wish is that it be a most Merry Christmas.

ANNUAL CONFERENCE OF COUNTY SECRETARIES AND MID-WINTER SESSION OF COUNCIL

So successful and profitable was the last year's Conference of County Secretaries that was held at the A. M. A. headquarters in Chicago that the Council has decided to repeat that program.

The Council will convene at 10 a. m. on January 22. At 6 p. m., the Council will join the Secretaries at dinner in the Drake hotel. After the dinner there will be pertinent talks by officers of the society and of the American Medical Association. The following morning, the 23rd, the Council and Secretaries will meet at the association headquarters at 9:30. A series of talks will be given by bureau and council heads. Luncheon will be served, to be followed by a tour of inspection of the A. M. A. buildings.

This is a preliminary announcement. The detailed program will appear in the January issue. County Secretaries are requested to bear the date in mind and plan to attend.

FILLING INSURANCE CERTIFICATES

In the September issue the report of the Committee on Civic and Industrial Relations was published. The House of Delegates at the Jackson Annual Meeting unanimously adopted this report concurring in the recommendations of the committee. Our members are urged to comply. These resolutions provide:

1. That physicians charge not less than $2.00 to Old Line Life Insurance companies for rendering special reports on the health and physical conditions of prospective applicants for insurance who have been patients of the physician from whom the report is requested—the fee to be increased according to the degree of service rendered.

2. That physicians charge a fee of not less than $2.00 for each preliminary and final claim proof made for the patient for health and accident policies.

As far back as fifteen years ago your Secretary has urged this policy. It is now an adopted policy of your State Society with which our members should comply. Physicians render valuable opinions and evidence to insurance companies when they make out these reports. Insurance companies benefit and profit from these reports and are enabled to adjust claims, often saving large payments or writing policies for poor risks. For this service physicians should be remunerated. The precedent is now established; insist upon and collect your just fee when you render this service.

There will be some company adjusters who will object. The advice is that you decline to fill the blank until your fee is paid. Other adjusters will argue that the individual benefited shall pay the fee. It is suggested that they be told to explain this to their policyholders at the time they sell them the policy. Again, there will be adjusters who will state that if physicians insist upon this course they will have to increase their rates and the burden is thus passed on to the policyholder. That is their worry and problem in their sale and renewal of policies. Other arguments and objections will be advanced to which no credence should be given. You are rendering a valuable service for which you are entitled to receive reasonable compensa-

tion. You become an "easy mark" if you fail to charge or collect.

FILING OF LICENSE CERTIFICATES

Our Michigan Medical Practice Act requires every licentiate under that act to file his certificate with the County Clerk in the county in which he locates. The Act further provides that when one relocates in another county he shall secure a certified copy of the certificate and file the same with the County Clerk of the county of his new location.

A goodly number of Michigan doctors have moved from their original locations. They have failed to comply with the above cited requirement. They are urged to comply at once with the law.

Our Medical Act also provides that assessing officers shall annually make a census of doctors in their assessment districts giving name, age, sex and years of practice of all doctors practicing in their districts and to file their census reports with the Secretary of the Board.

Within the past month assessing officers have been officially requested to comply with this provision of the law. Upon receipt of this census of doctors of the state it is purposed to check the list with the records of the Board of Registration. An investigation will follow of all those who have not complied with the law and such action will be taken as is deemed most advisable by the Board of Registration.

If you have moved from your original location and failed to re-register with the County Clerk in your new location please attend to correcting your error. Do it today.

MINUTES OF THE MEETING OF THE JOINT COMMITTEE ON PUBLIC HEALTH EDUCATION, HELD AT THE MICHIGAN UNION, ANN ARBOR, MONDAY, NOVEMBER 4, 1929

There were present at this meeting the following representatives of the different member organizations specified below:

Michigan State Medical Society—Doctors John B. Jackson, F. C. Warnshuis, Angus McLean, J. E. Davis, and J. H. Dempster; University of Michigan—Doctors Huber, Cabot, Sundwall, Bruce, Isaminger, Henderson, and Mr. C. A. Fisher; Michigan State Dental Society—Dr. W. R. Davis, Lansing; Michigan Department of Health—Dr. Don M. Griswold; Detroit College of Medicine and Surgery—Dean W. H. MacCracken; Wayne County Medical Society, Committee on Education—Dr. W. J. Stapleton, Jr.; Michigan State Nurses Association—Miss E. P. Robinson, Ann Arbor; State Department of Public Instruction—Miss Lera B. Curtis; Michigan State Conference of Social Work—Dr. Robert Haskell, Northville; American Red Cross, Michigan Division—Mrs. Elsbeth Vaughan; Michigan Hospital Association—Dr. H. A. Haynes.

In the absence of the President of the University, who is ex-officio chairman of the joint committee, Dr. Huber, Dean of the Graduate School, was called upon to preside. After the luncheon the following order of business was carried out:

1. Reading of the minutes of the last meeting, W. D. Henderson, secretary of the joint committee.

2. Report of the Health Education program for the current year, Mr. Henderson. The health education program, as sponsored by the joint committee, has shown a steady advancement from the beginning, both in the scope and the character of the work. This year ten new counties were added to last year's list of counties in which high school assembly programs were organized. An interesting feature of this phase of the work for the present year is the fact that a large number of centers outside of those already organized have written to the extension division asking for health lectures in connection with high school programs, and communications from the following places having been received up to date this year:

Alma	Manchester
Bad Axe	Marcellus
Big Rapids	Marne
Bloomingdale	Mayville
Britton	Melvindale
Coleman	Munising
Corunna	New Baltimore
Croswell	Okemos
Ferndale	Pentwater
Gobles	Pinconning
Gwinn	Port Hope
Houghton	Richland
Howell	Roseville
Imlay City	St. Louis
Kenton	Stephenson
Lake Odessa	

As an evidence of the growth of the health education activities, the following comparison of the year 1928-29 with that of the year previous is submitted.

	1927-28	1928-29
Number of doctors and dentists taking part in the health program	112	151
Number of health lectures given to Parent-Teacher Associations and high schools	541	576

Average attendance on PTA lectures	137	170
Average attendance on high school lectures	295	278
Total estimated attendance	154,000	170,000

3. Report of Field Work, Dr. Isaminger. Last year health education programs were arranged in connection with high school assemblies in eighteen counties. This year the following ten counties were added to the list, making a total of 28: Allegan, Macomb, Ottawa, Muskegon, Manistee, Wexford, Grand Traverse, Leelanau, Livingston, and Washtenaw.

Dr. Isaminger reported that high school authorities are becoming more and more interested in the health program as sponsored by the joint committee. He also commended the doctors who have so generously given of their time in connection with these health exercises.

4. Report of the High School Essay and Poster Contest Program, Mr. Fisher, Assistant Director of the Extension Division. The essay and poster contest was inaugurated last year as an experiment, the idea being to arouse interest among the students in our health lectures. The essays were supposed to be written upon subjects presented by the doctors who gave the addresses. In the case of the posters greater liberty in the selection of subjects was allowed. Twenty-four schools entered the contest last year, submitting a total of eighty-seven posters and essays. The joint committee furnished the sum of $100 to be divided into eight prizes, four for essays and four for posters. These prizes were awarded according to the rules established by the committee.

At the present time indications point to the fact that more than twice as many schools will enroll this year in the Poster and Essay Contest.

Mr. Fisher called attention to the fact that the number of requests for health education programs from centers outside of the counties in which regular high school assembly programs have been organized, was probably due in a large measure to the distribution of the Essay and Poster Contest Bulletin which was sent to all the schools of the state.

5. Report of the Publicity Committee, Dr. Bruce. In reviewing the newspaper publicity activities of this committee for the past two years Dr. Bruce stated that while at the beginning of the work he was rather skeptical as to the worth of the program, he is at present thoroughly convinced of its importance as an educational factor. He has received inquiries concerning the project from many parts of the country. It is worthy of note that in connection with the publication of the hundreds of articles during the past two years and the thousands of questions answered, there have arisen only three criticisms of any special significance.

The receipts from February 1 to November 1 from publications carrying the health education column were $1,763.50, which amount was deposited with the treasurer of the joint committee.

6. Report of the Treasurer. The financial report submitted by Dr. Warnshuis, treasurer of the joint committee, covering the period from February 1 to November 1, 1929, showed the following receipts and expenditures:

Receipts to November 1st	$3,173.35
Expenditures	2,625.46
Balance on hand	$ 547.89

There existed in the minds of some members of the committee some confusion as to what constitutes the fiscal financial year of the joint committee. It was explained by Dr. Warnshuis that in the Medical Society the fiscal year begins February 1. The above report, therefore, covering receipts and expenditures, does not include the annual contributions made by the various member organizations to the publicity activities of the joint committe.

In connection with the treasurer's report the question arose as to the various sums pledged by contributing organizations. Mr. Henderson called attention to the fact that last year contributions were as follows:

Michigan State Medical Society	$1,000.00
University of Michigan	500.00
Michigan State Dental Society	500.00
Michigan Tuberculosis Association	300.00
Michigan Hospital Association	100.00
Michigan State Nurses Association	100.00
	$2,500.00

The secretary moved that the treasurer be asked to communicate with the above named organizations, asking that the contributions be continued for the current year. Motion prevailed.

The secretary also moved that an expenditure of $300 from the publicity fund be authorized in connection with the essay and poster program, with the understanding that $100 be allocated for prizes and that $200 be allowed for the publication of a special bulletin containing the prize essays and posters. Carried.

7. Report of the Committee on Lecture Outlines, Mr. Henderson. During the past

few years the lecture outlines have been prepared by two separate committees, one representing the Medical Society and the other representing the Dental Society. It was moved and carried that hereafter the lecture outlines committee shall consist of the following members: Doctors Cabot, Bruce, Sundwall, Dempster, Lyons, W. R. Davis, Thompson, and Henderson, the latter acting as chairman of the committee. Attention was called to the fact that the State Association of High School Principals had appointed a committee of three, consisting of Mr. G. E. Loomis of Big Rapids, W. C. Harton of Albion, and N. W. Chaffee of Saginaw, to confer with the program committee of the joint committee in connection with the matter of high school assembly programs. The plan of holding a joint meeting of the two above named sub-committees was approved.

8. Time and place of next meeting. It was moved by Dr. Warnshuis and carried that the time and place of the next meeting be subject to the call of the secretary.

W. D. Henderson, Secretary.

November 6, 1929.

STANDING COMMITTEES

President Brook and Speaker Pyle have appointed their committees for the current year. A list of these committees may be found in the front advertising section of each issue of the Journal. It is the earnest desire of President Brook that these committees shall function most actively. They are created for a purpose. Definite duties are delegated to each committee. The President and the House of Delegates rightfully expect that the work of these committees will reflect definite achievements during the current year.

MINUTES OF THE EXECUTIVE COMMITTEE

October 24, 1929

The Executive Committee of the Council convened at the Pantlind Hotel, October 24, 1929.

Present: R. C. Stone, Chairman
Henry Cook
James D. Bruce
George L. Le Fevre
B. R. Corbus
J. D. Brook, President
F. C. Warnshuis, Secretary,

and in addition Councilor Ricker and Editor Dempster attended the session.

1. Upon motion of Corbus-Bruce, the Secretary in consultation with the Editor were instructed to secure prices upon the publication of the volume of the History of the Medical Profession in Michigan and report back to the Executive Committee at its next meeting the bids that they have secured.

2. Upon motion of Corbus-Bruce, that place be immediately given in the Journal to advertising the History and that as soon as the cost of the volume is ascertained that subscriptions be solicited and County Secretaries requested to secure subscriptions among their members.

3. Upon motion of Le Fevre-Cook, the Secretary was instructed to renew the indemnifying bond of Treasurer Rogers.

4. Upon motion of Bruce-LeFevre, it was decided to hold the January meeting of the Council in Chicago on the morning of January 22, 1930, and that the first session of the Secretaries Conference be held at 6:00 p. m., January 22 and continue through the following day, January 23rd; that the Drake Hotel be designated as headquarters.

5. Dr. Bruce reported upon the conference that he had held with the Couzen's fund committee and that a pediatric clinic had been arranged to be held in Ann Arbor on November 26th. Upon motion of Corbus-Bruce, the Secretary was directed to request the Councilors to write to the officers of the County Societies in their district calling attention to this pediatric clinic and urging attendance.

6. President Brooks submitted the following appointments for the Standing Committees of the Society, which were approved:

COMMITTEE ON LEGISLATION AND PUBLIC POLICY

John Sundwall, Ann Arbor, Chairman.
Frank Kelly, Detroit
W. C. McCutcheon, Cassopolis
Earl Carr, Lansing.
J. B. Jackson, Kalamazoo.

COMMITTEE ON PUBLIC HEALTH

W. C. Ellet, Benton Harbor, Chairman.
George Southwick, Grand Rapids
A. L. Callery, Port Huron
H. M. Joy, Calumet
Philip Riley, Jackson.

COMMITTEE ON TUBERCULOSIS

J. S. Pritchard, Battle Creek, Chairman.
E. N. Nesbitt, Grand Rapids
S. Lojacono, Marquette
B. A. Shepard, Kalamazoo
J. Wessinger, Ann Arbor.

COMMITTEE ON CIVIC AND INDUSTRIAL RELATIONS

H. S. Collisi, Grand Rapids, Chairman.
C. D. Munro, Jackson
L. O. Geib, Detroit
A. W. Hornbogen, Marquette
C. S. Gorsline, Battle Creek
R. H. Nichols, Holland
A. R. McKinney, Saginaw
H. F. Dibble, Detroit
G. M. Curry, Flint.

JOINT COMMITTEE ON PUBLIC HEALTH EDUCATION

J. E. Davis, Ann Arbor—To succeed Dr. A. P. Biddle of Detroit whose term expired and he requested that he be not reappointed.

7. Upon motion of Corbus-Bruce, that the local expenses incurred by the Women's Auxiliary at Jackson be paid from the funds of the State Society.

8. Upon motion of Le Fevre-Cook, that the question of legislative publicity be referred to the Committee on Legislation.

9. Upon motion of Bruce-Cook, that the action of the House of Delegates designating St. Joseph and Benton Harbor as the place for holding our

1930 Annual Meeting be concurred in and recommended to the Council for approval at its January session.

10. Upon motion of Cook-Bruce, that Dr. Stone and Councilor Boys be directed to attend the requested conference in South Haven at which the local hospital problem is to be discussed.

11. Upon motion of Le Fevre-Cook, that the Michigan State Medical Society act as host to the Officers and Members of the House of Delegates of the American Medical Association on Monday evening of the session that is to be held in Detroit in 1930.

The meeting adjourned at 10:45 p. m.

F. C. WARNSHUIS,
Secretary.

BERRIEN COUNTY

The Berrien County Society held their October meeting in the form of a post-graduate clinic arranged by the State Society on the 16th in the Hotel Vincent, Benton Harbor.

The papers started at 1:30 p. m. and continued into the evening with a dinner followed by a lecture given by Dr. Cramp, Secretary of the Bureau of Investigation of the American Medical Association.

There were about 50 present for the papers given in the afternoon by Doctors Camp and Coller of Ann Arbor and Dr. Nathan Davis, III, of Chicago. Owing to the lack of time but little discussion was allowed.

There were about 40 present for the dinner which was held in the Rose Room of the Hotel Vincent. A short business meeting was held immediately following the meal at which the delegate to the State Meeting in Jackson gave his report. Also an invitation was given by the Cass County Society to the members of Berrien to meet with them for the November meeting at Dowagiac. This invitation was accepted and the two societies will unite their meeting for that month.

The evening lecture given by Dr. Cramp was on "Fads and Foibles in Medicine" and dealt with an expose of the various so-called "patent" preparations. His talk was illustrated by slides showing the different advertisements of nostrums and their formula. The talk was extremely interesting and was well discussed. We regret very much that the lay public could not have heard this lecture.

The program in the afternoon was carried out exactly as outlined in the announcement carried in the October issue of the State Journal. It was an excellent arrangement and the attendance and attention brought forth enthusiastic comments on the part of the guest speakers and the members.

The Berrien County Society was visited by Doctors Kiefer, Barnes and McIntosh of the State Board of Health in October, who aided in presenting the new county health unit idea to the public and the County Board of Supervisors, this society previously having gone on record as in favor of such a unit being established in this county. The proposition was turned down by the Board of Supervisors on the grounds that it called for an appropriation and not in line with the economy program laid out for the coming year.

W. C. Ellet, Secretary.

LENAWEE CO.

The November meeting of the Lenawee County Medical Society was held at the Lenawee hotel in Adrian on the third. Eighteen members were present. After a sumptuous dinner, a short business meeting was held, at which a committee of arrangements was appointed for the December meeting, at which Dr. George W. Crile is to be the guest of honor.

The speaker of the evening, Dr. Charles G. Jennings of Detroit, was then introduced by President Marsh. Dr. Jennings was accompanied by Dr. Wallace of Detroit, who asssited him with the lantern slides. Dr. Jennings' subject was, "Bronchiectasis." In his remarks, the essayist laid special stress on the points that the cure of bronchiectasis is prevention, and that it is usually caused by some infection of the upper respiratory tract. The subject was presented in the same lucid manner as was Dr. Jennings' custom when the writer was a student under his teaching of practice 27 years ago. Excellent lantern slides followed the verbal discussion. Due appreciation was expressed to Dr. Jennings by all the members present.

C. H. Westgate, Secretary.

MONROE CO.

Monroe County Medical Society held its annual meeting, October 17, 1929. The following officers were elected:

President—Dr. D. C. Denman, Monroe.
Vice-President—Dr. L. C. Blakey, Monroe.
Secretary-Treasurer—Florence Ames, Monroe.
Delegate—Dr. S. J. Rubley, Monroe.
Alternate Delegate—Dr. M. A. Hunter, Monroe.
Censor for Three Years—Dr. J. A. Humphrey, Monroe.
Censor for Two Years—Dr. R. T. Ewing, Monroe.
Censor for One Year—Dr. H. W. Landon, Monroe.
Two Directors—Doctors J. H. McMillin, Dundee, and H. L. Meck, Dundee.

Dr. John S. Orwig, graduate of the University of Michigan, 1928, now practising at 5 S. Monroe street, Monroe, was elected to membership.

Yours very truly,
Florence Ames, Sec'y.-Treas.

ST. CLAIR CO.

A regular bi-monthly meeting of the St. Clair County Medical Society was held, November 21, at the Harrington hotel, Port Huron.

Twenty members in attendance sat down to dinner, together with visitors from Sanilac and Lapeer counties.

One of the items of business was an effort to change the by-laws calling for bi-monthly meetings to one meeting a month. After discussion on the subject, the amendment was voted down by an overwhelming majority, the consensus of opinion being that the change to fewer meetings would reduce the interest of the members in their society.

Dr. Charles Jennings of Detroit then gave an able address on "Pneumonia," stressing therapy in particular. He gave the latest statistics obtained from the large eastern hospitals as to the incidence of the various types—their mortality rates, with and without the use of the newer serums now obtainable in the institutions.

In summarizing his address it was shown that the pneumonias of types one and two, are being aided by the serum treatment, but that types three and four are not as yet susceptible to any serum so far produced.

A general discussion followed the paper.

THE DOCTOR'S LIBRARY

Offering Suggestions and Recommendations

APPLIED PHARMACOLOGY—A. J. Clark, B. A., M. D. Professor of Materia Medica and Pharmacology, University of Edinburgh. Third Edition. 530 Pages and 65 Illustrations. P. Blackiston's Son & Co., Inc. Philadelphia, Pa. Price $4.00.

Pharmacology and therapeutics are usually taught not only as two different subjects but at different stages in the student's academic career. The author has endeavored to bridge the gap between the two. From experiments on laboratory animals we learn certain effects of drugs which is useful information. The really important matter which concerns clinical medicine is the effects of therapeutic doses of drugs on human beings who are suffering from disease. The author endeavors as far as possible to illustrate the action of drugs as manifest in the patient or human subject. The work is written in a clear and informative style. It is difficult to make a selection of subjects which are more interestingly treated. To select at random we have fifty-seven pages devoted to the pharmacology of the alimentary tract in which we have described the action of drugs upon salivary secretion, local and central emetics, the action of drugs upon gastric secretion and the movements of the stomach both in health and disease. The small and large intestine are also studied from the viewpoint of drug action. Each subject is prefaced by a review of the physiology of the organ. We know of no more rational work on the subject of drug action as studied in connection with physiologic as well as diseased conditions in man.

MINOR SURGERY—Frederick B. Christopher, M. D. Associate in Surgery at Northwestern University Medical School, Chicago. With a Foreword by Allen B. Kanavel, M. D., Professor of Surgery, Northwestern University Medical School. Octavo of 694 pages with 465 illustrations. Philadelphia and London: W. B. Saunders Company, 1929. Price $8.00 net.

A work on minor surgery if it is well written by a master is of major importance. Practically everyone practising medicine performs more or less minor surgery. Even the internist is not exempt. When we consider the great increase of accidents due to motor traffic and to the phenomenal growth of industries as well, the importance of minor surgery at once becomes evident. It must be borne in mind always that so-called minor surgery if not well done may become major surgery. Major surgery is not often attempted by those who have not special training and qualifications. We said, not frequently. Unfortunately there are those who rush in where angels fear to tread. Minor surgery, however, being to a certain extent of an emergency nature must be attempted by those whose regular work is not so as to keep them in practice with the scalpel. The present book contains twenty-four chapters. The scope of the work is indicated by some of the titles selected at random: Open and Closed Wounds, Foreign Bodies, Furuncles and Carbuncles, Burns, Injuries by Electricity, Circulatory Disturbances in Gangrene, Injuries and Infections of the Head and Neck as well as Trunk. The work is well illustrated by photographic reproductions and by line drawings. An interesting chapter is that on Minor Surgical Technic. This work will be found to fill a useful place in the practice of surgeon as well as general practitioner.

THE CHALLENGE OF CHRONIC DISEASES—Ernst P. Boas, M. D. Attending Physician Montefiore Hospital for Chronic Diseases, and Nicholas Michilson, M. D., Adjunct Physician to same. Price $2.50. The Macmillan Company, New York.

This work discusses a situation concerning that which comparatively little thought has been given up to the present time. The hospital takes care of the acutely ill but makes little or no provision for the long chronic case, with the possible exception of the tubercular patient. Alms houses and houses of refuge take care of the indigent who are well, but no special provision is made for the chronic sick. This little book tells how it is done in one institution, the Montefiore Hospital. The subject is discussed largely from the institutional viewpoint. The volume is commended to the attention of social workers and to others who are confronted with the problems, with which it deals.

AN INTRODUCTION TO THE STUDY OF HUMAN ANATOMY—Robert James Terry, A. B., M. D., Professor of Anatomy, Washington University, 346 pp. Macmillan Co., 1929, $3.50.

Twenty years accumulated experience with the project method of anatomical teaching in the anatomical laboratory of Washington University medical school has been embodied in this work by Professor Terry. It is essentially a dissector, but it differs from other manuals in the absence of both illustrations and descriptions. It constantly suggests problems to the students which he can answer only from his dissections. He is encouraged to find the principal facts of anatomy from the cadaver rather than from his texts. Group research on variation of structure is constantly kept before the student as a modern method in anatomy, belying the ordinary supposition that descriptive anatomy has been entirely recorded in the textbooks. The admonition to verify and compare the form and position of organs is so completely carried out that this text should prove to be an actual contribution to medical pedagogies.

THE NUTRITION OF HEALTHY AND SICK INFANTS AND CHILDREN. FOR PHYSICIANS AND STUDENTS—C. Pirquet, E. Nobel and R. Wagner, all of the Children's Hospital of the University of Vienna. Second revised edition with 78 illustrations (including charts) and 6 tables. Authorized translation by Benjamin M. Gasul, B. S., M. D., Consulting Pediatrist at the Municipal Tuberculosis Sanitarium of Chicago. F. A. Davis Co., Philadelphia, Pa.

This book is a translation of the second edition of the German work and deals with the practical application of Professor Pirquet's "nem" system. It is intended for physicians and students, therefore nine-tenth of the space is devoted to the clinical aspects of nutrition. Von Pirquet uses a definite quantity of milk instead of the calorie as the unit of nutrition and the nutritional requirements are based on the body surface instead of the body weight. The unit is one gram of human milk which is called the nem and the

body surface is calculated by squaring the sitting height. In addition to the explanation of the nem system other theoretical aspects of nutrition are very clearly and concisely presented in the first twenty-five pages of the book. The remainder of the book is devoted to the practical aspects of nutrition and included in the topics dealt with are, the nutrition of the normal infant and child, nutrition of the premature, disturbances in nutrition, nutritional management of infectious diseases of myxedema, enuresis, anorexia, cyclic vomiting, nephritis, diabetes, obesity, epilepsy, anemia and goitre. There are many tables and charts which aid in the application of the system and the final chapter contains diet forms and recipes. This short book contains much valuable information on the subject of nutrition and should be very useful to the general practitioner even though he did not wish to use the nem system.

EDEMA AND ITS TREATMENT—Herman Elwyn, M. D., 182 pp. The Macmillan Company, New York, $2.50.

Dr. Elwyn's book is essentially a compilation of the literature on edema rather than a record of original research. The physiology of water storage and exchange in the body is well treated, edema being considered as a local response to a disturbance in the concentration of the body sera. A nervous mechanism for control of water exchange is described. Attention is given the specific effects of electrolytes and hormones. Edema is then considered from the clinical aspect, particular attention being given the etiology and therapy of edema arising from cardiac failure, glomerulo-nephritis, lipoid nephrosis and chronic undernutrition.

DISEASES OF THE CHEST AND THE PRINCIPLES OF PHYSICAL DIAGNOSIS—George W. Norris, M. D., Professor of Clinical Medicine in the University of Pennsylvania, and Henry R. M. Landis, M. D., Professor of Clinical Medicine, University of Pennsylvania; Director of the Clinical and Sociological Departments of the Henry Phipps Institute of the University of Pennsylvania, with a chapter on the Transmission of Sounds Through the Chest, by Charles M. Montgomery, M. D., and a chapter on the Electrocardiograph in Heart Disease, by Edward Krumbhaar, Ph. D., M. D. Fourth Edition, Revised. 954 pages with 478 illustrations. Philadelphia and London: W. B. Saunders Company, 1929. Cloth $10.00 net.

This is the fourth revised edition of this well known and valuable work. It has been brought up to date and is well illustrated by new pictures of patients, cross-sections through the chest, diagrams and pathological specimens. As in other editions clinical methods of diagnosis are especially emphasized. A chapter on the transmission of sounds through the chest by Charles M. Montgomery, M. D., has been added and also one on the electrocardiograph in heart disease by Edward B. Krumbhaar, Ph. D., M. D., and there is a brief account by Dr. Lewis H. Clerf on the part the bronchoscope plays in the diagnosis of respiratory affections. Careful study of this book should do much to overcome a tendency to depend too much upon the laboratory in making a diagnosis.

THE SURGICAL CLINICS OF NORTH AMERICA—(Issued serially, one number every other month.) Volume 9, Number 5. (Philadelphia Number—October, 1929) 299 pages with 111 illustrations. Per Clinic year (February, 1929, to December, 1929.) Paper, $12; cloth, $16. W. B. Saunders Company, Philadelphia, Pa.

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every month.) Volume 9, Number 3. (New York number—June, 1929) 299 pages with 125 illustrations. Per Clinic year (February, 1929, to December, 1929.) Paper, $12; cloth, $16. W. B. Saunders Company, Philadelphia, Pa.

MEDICAL CLINICS OF NORTH AMERICA—Volume 13, Number 2. (Chicago number, September, 1929.) Octavo of 232 pages with 61 illustrations. Per Clinic year, (July, 1929, to May, 1930.) Paper, $12; cloth, $16 net. W. B. Saunders Company, Philadelphia, Pa.

PRACTICAL MASSAGE AND CORRECTIVE EXERCISES WITH APPLIED ANATOMY—By Hartvig Nissen. Fifth edition, revised and enlarged by Harry Nissen, President, Posse-Nissen School of Physical Education, Boston, Mass. Illustrated with 72 original halftone and line engravings. F. A. Davis Co., Philadelphia, Pa. Price, $2.50.

CLINICAL MEDICINE FOR NURSES—By Paul H. Ringer, A.B., M.D. Formerly Chief of Medical Service of the Asheville Mission Hospital, Asheville, N. C.; and on staff of Biltmore Hospital, Biltmore, N. C. Illustrated. Third revised edition. F. A. Davis Co., Philadelphia, Pa. Price, $3.

DISORDERS OF THE SEXUAL FUNCTION IN THE MALE AND FEMALE—By Max Huhner, M.D. Third edition. F. A. Davis Co., Philadelphia, Pa. Price, $3.

MOBILE RIGHT COLON

W. R. Houston, Augusta, Ga., reports the case of a patient, aged 20, a tall, graceful, vigorous, high-spirited girl, not markedly of enteroptotic habitus, who had always been well, not constipated, and fond of outdoor exercises, but while in France acquired an acute diarrhea that lasted a week. After this she was never well. On her return, she was pale, her eyes had a yellowish cast, her skin was muddy. She had no appetite, and she was uncomfortable after eating. Gastric acidity was low, and constipation marked. There was great tenderness over the cecum. Her most distressing symptom was a profound asthenia. Though her eyes were normal to tests, she could not read without pain. She had constant headaches and insomnia. A consultant advised appendectomy. At the operation there was disclosed a perfect example of Jackson's membrane sweeping over the whole ascending colon. The appendix was definitely pathologic. Its removal brought no alleviation of symptoms. Attempts to revise the medical management were made, but unavailingly. Finally, the family insisted that a new operative method for colopexy be tried. The convalescence from the operation was slow but steady. After a year of invalidism the patient regained finally all her former vigor and has never been sick since. Since that time 145 colopexies have been done. These operations were carried out on only a very small proportion of the patients that had a mobile right colon. Twenty patients had had a previous appendectomy; some had had cholecystectomy, removal of a right ovary, or an operation for adhesions. There has been no operative mortality in the series. On the whole, the results have been satisfactory—considerably more satisfactory than the ordinary plastic operations of gynecology. Some patients, particularly those whose condition simulates chronic appendicitis, are immediately relieved of pain. Others in whom the neurotic habit is well established will require considerable postoperative medical management. After the colon is fixed the medical management is easier. The tendency to relapse after a cure is greatly lessened. Dyspeptic symptoms disappear. The pains that simulate gallbladder or duodenal disease subside. The asthenia is more readily combated. Most of these patients might have been successfully treated medically. A small proportion probably required surgical treatment. Some can scarcely be cured without surgery.—Journal A. M. A.

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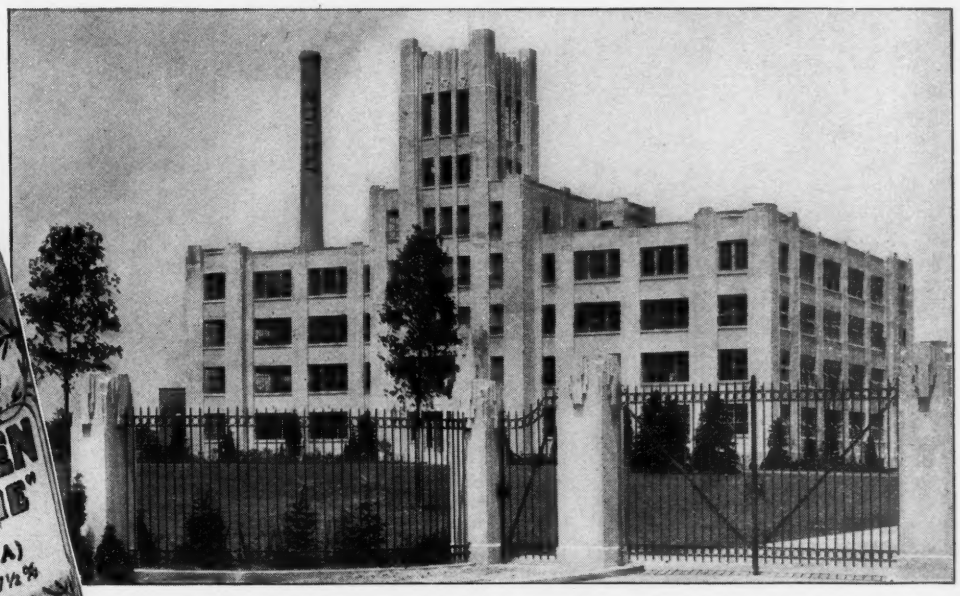

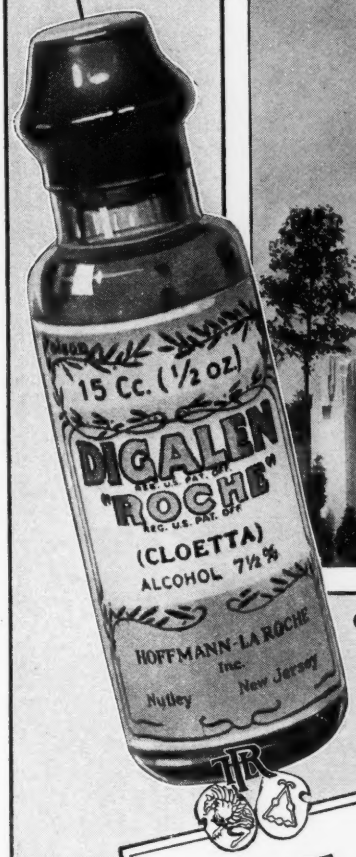

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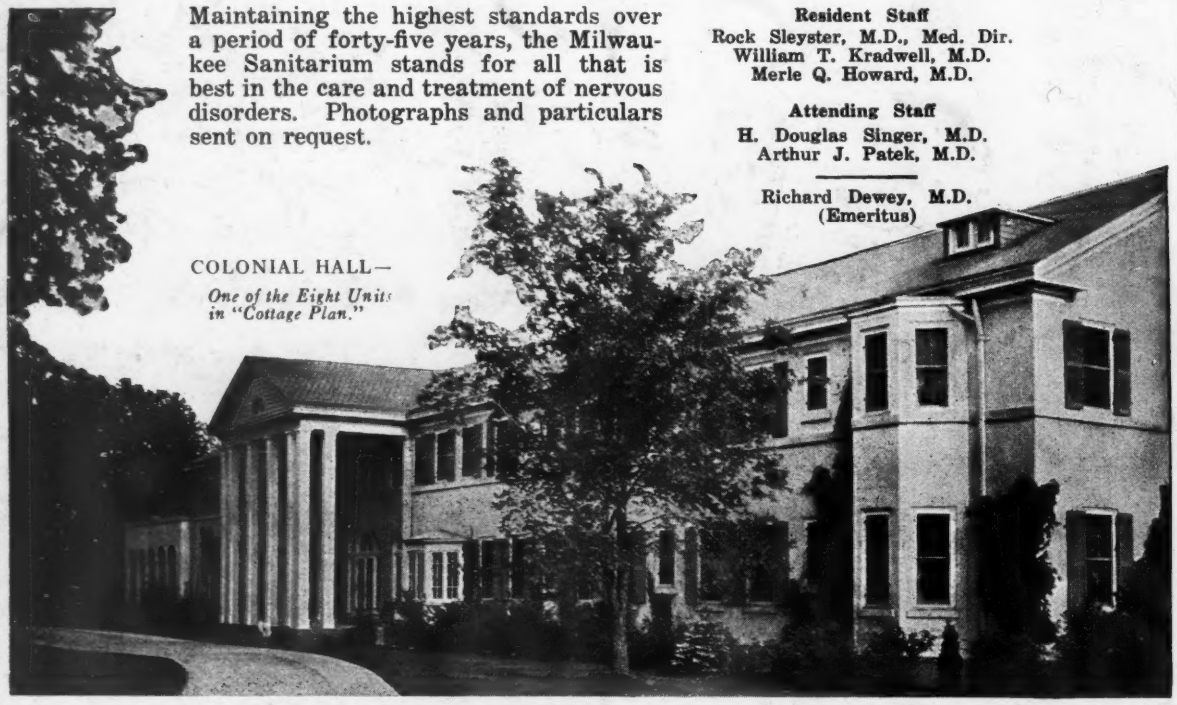
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